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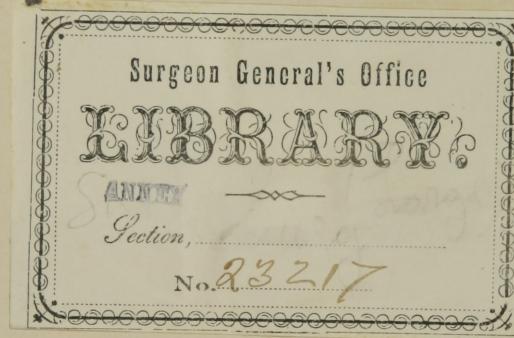
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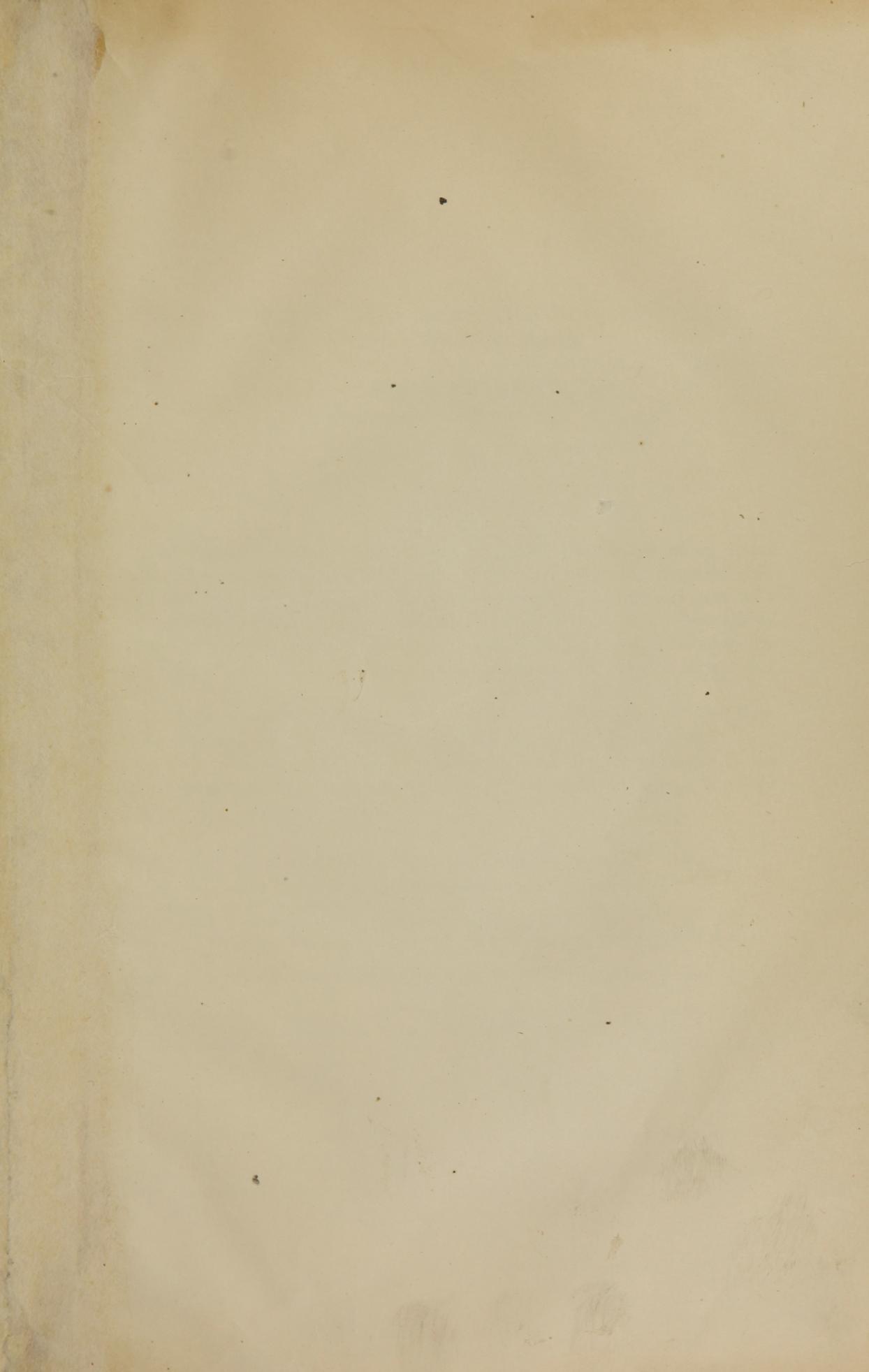
AMPUTATIONS AT THE MASSACHUSETTS GENERAL
HOSPITAL, BOSTON, MASS.

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AMPUTATIONS AT THE MASSACHUSETTS GENERAL
HOSPITAL, BOSTON, MASS.

Compiled by JAMES R. CHADWICK, M.D.
LATE SURGICAL HOUSE OFFICER.

MAY 1, 1871.

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THE following tables comprise the results of 699 major amputations of the limbs. The larger part have never before been made public. In 1851, Dr. Hayward published a list of the amputations performed in this Hospital up to that date, but with so few details, that in making up the present series it has been found imperatively necessary to refer to the original records in order to obtain all the data bearing upon the cases recorded. No pains have been spared to render the abstract correct and complete.

The results are compared with those obtained, so far as published, in the New-York City Hospital, the Pennsylvania Hospital and the Boston City Hospital.

Of the 699 cases, the result in seven is unknown, either from imperfection in the records, or in consequence of early removal from the Hospital—of course these do not enter into the estimate of mortality.

EXPLANATION OF TABLES.

"Primary" signifies within 24 hours of the time of the accident.

"Secondary" any time after that period.

"Pathological" includes all amputations for non-traumatic cases.

"Duration" signifies the period from the date of the accident to the date of the operation.

"Length of time" signifies the period from the date of the operation to the date of the discharge.

The fractions $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, designate, respectively, the upper, middle and lower thirds of the limb; and $\frac{1}{3}-\frac{2}{3}$ designate the junction of the upper and middle thirds, &c.

There have been no amputations at the elbow joint, and only two at the wrist joint, which latter have been included in the tables, with the forearm.

As my friend Dr. Wood has already tabulated the amputations at the knee joint, they are, with his permission, incorporated in this paper, together with his deductions from them.

Three amputations at the ankle joint—one by each of the three methods of Roux, Syme and Liston—have been included with those of the leg.

In all fatal cases where the cause of death is not especially stated, it may be attributed to exhaustion, although in a few of these pyæmia was suspected.

AMPUTATIONS AT THE

Table 1. AMPUTATIONS AT SHOULDER JOINT.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura- tion.	Method of Amputa- tion.	Length of Time.	Result.	Details.
1	J. M. Warren	May 16, 1851	Laborer	M. 32	Comp. com. fract. of arm	3 h.	Flap	Recovery	25 d.	Crushed between rollers; erysipelas.
2	Townsend	Sept. 27, 1851	"	M. 24	Comp. "	2 h.	"	"	63 d.	Mutilated by machinery as high as $\frac{2}{3}$.
3	"	Aug. 15, 1852	Mechanic	M. 21	" " "	10 h.	"	"	65 d.	R. R. accident; lacerated up to axilla.
4	"	Sep. 9, 1852	Laborer	M. 29	" " "	13 h.	"	Death	6 d.	
5	"	Aug. 15, 1855	Mechanic	M. 27	" " "	1 $\frac{1}{2}$ h.	"	Recovery	132 d.	
6	Gay	Aug. 10, 1855	"	M. 23	" " "	forearm 2 h.	"	"	74 d.	R. R. accident; comp. fracture of clavicle.
7	"	Aug. 28, 1857	"	M. 38	" " "	arm 2 h.	"	Death	37 d.	
8	Cabot	Nov. 23, 1859	Laborer	M. 32	" " "	forearm 2 h.	"	"	R. R. accident; incised wound of thigh.	
9	Bigelow	Jan. 6, 1860	Machinist	M. 50	" " "	arm 2 h.	"	"	Laceration of arm; delirium tremens.	
10	Cabot	Aug. 22, 1860	Brakeman	M. 32	" " "	8 h.	"	Recovery	20 d.	
11	Clark	June 29, 1864	Mason	M. 36	" " "	4 h.	"	Death	6 d.	
12	Hodges	Sept. 3, 1864	Soldier	M. 23	Comp. fracture of arm	2 h.	"	Recovery	53 d.	
13	"	Oct. 10, 1865	Papermaker	M. 49	" " "	24 h.	"	Death	12 d.	
14	Cabot	Dec. 2, 1870	Engineer	M. 50	Comp. com. fracture of arm	2 h.	"	"	Premature explosion; sloughing of flaps.	
15	Bigelow	Feb. 16, 1871	Photographer	M. 32	" " "	3 h.	"	"	6 d.	

Recovered, 7
Died, 8—Total, 15.
Ratio of mortality, 53:32 per cent.

Deaths from Exhaustion, 5

Collapse, 2

Shock, 1

AMPUTATIONS AT SHOULDER JOINT.—TRAUMATIC—SECONDARY. No Cases.

Table 2. AMPUTATIONS AT SHOULDER JOINT.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Dura- tion.	Method of Amputa- tion.	Length of Time.	Result.	Details.
1	Townsend	March 5, 1853	Mechanic	M. 41	Chronic disease of joint	3 y.	Flap	Recovery	84 d.	Encephaloid.
2	Bigelow	Jan. 9, 1858	Laborer	M. 47	Tumor of arm	24 y.	"	"	103 d.	Great burrowing of pus in arm.
3	Gay	Aug. 28, 1858	"	M. 26	Necrosis of humerus	5 w.	"	"	60 d.	Glenoid cav.; acromion & coracoid processes rem'd.
4	Cabot	Dec. 18, 1858	Tumor of shoulder	M. 50	Tumor of shoulder	1 y.	"	Death	8 d.	Encephaloid; not quite cicatrized.
5	"	Dec. 30, 1859	Housewife	F. 38	" " arm	14 mo.	"	Recovery	53 d.	Cicatrices of burn; vomiting; head affection.
6	J. M. Warren	April 3, 1860	Child	M. 7	Ulcers of shoulder and arm	2 $\frac{1}{2}$ mo.	"	Death	113 d.	Integument removed by bolt of machinery.
7	Gay	Aug. 2, 1860	Wool-carder	M. 13	Ulcers of arm	2 mo.	"	Recovery	18 d.	Encephaloid.
8	Bigelow	Jan. 14, 1864	Carpenter	M. 68	Tumor of arm	7 mo.	"	Death	47 d.	Much reduced before op.; pyramia shown at autopsy.
9	"	Dec. 2, 1867	Shoemaker	M. 17	Necrosis of humerus	8 mo.	"	"	12 d.	Myeloid; secondary haematuria.
10	Gay	Sept. 23, 1869	Slater	M. 40	Tumor of arm	25 y.	"	Recovery	26 d.	Sarcoma fasciatum.
11	Bigelow	Jan. 11, 1871	Farmer	M. 32	" " "	12 y.	"	"	25 d.	Causes of amputation were Tumors in 6 cases.

Recovered, 8
Died, 3—Total, 11.
Ratio of mortality, 27:27 per cent.

Deaths from Exhaustion, 1

Pyamia, 1

Cerebral lesion, 1

" Ulcers 2 "

" Necroses 2 "

" Chr. dis. of joints 1 "

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Table 3. AMPUTATIONS OF ARM.—TRAUMATIC—PRIVARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura- tion.	Ampu-tation. Method Place.	Result.	Length of Time.	Details.
1	Townsend	July 24, 1847	Weaver	M. 45	Comp. com. fract. of arm	6 h.	Circular Flap	Death	4 h.	R. R. accident; reduced by disease & loss of blood.
2	J. M. Warren	April 28, 1848	Laborer	M. 28	" forearm	5 h.	"	Recovery	98 d.	Explosion; amputation of other forearm.
3	"	April 7, 1849	Mechanic	M. 22	" " arm	2 h.	"	"	51 d.	R. R. accident; erysipelas,
4	Clark	Mar. 29, 1851	Laborer	M. 27	" " elbow	4 h.	"	"	46 d.	
5	"	April 28, 1851	Seaman	M. 45	" " "	2 h.	"	"	29 d.	
6	Mar. 23, 1854	Mechanic	M. 36	" " forearm	3 h.	"	"	"	28 d.	Sloughing of flaps.
7	Townsend	July 17, 1856	Laborer	M. 24	" " elbow	2 h.	Circular Flap	"	32 d.	Communited fracture of other arm.
8	Cabot	Aug. 18, 1856	Housewife	F. 65	" " forearm	3 h.	"	"	32 d.	Intoxication.
9	Townsend	Aug. 5, 1857	Mechanic	M. 21	" " "	5 h.	"	"	20 d.	
10	J. M. Warren	May 20, 1860	Minor	M. 12	" " elbow	2 h.	"	"	41 d.	R. R. accident; scalp wounds.
11	Clark	July 13, 1861	Carpenter	M. 60	" " arm	2 h.	Flap	"	47 d.	
12	Gay	Sept. 3, 1861	Minor	F. 11	" " forearm	3 h.	Circular Flap	"	80 d.	" amp. of fingers; resection of end of bone
13	J. M. Warren	April 8, 1862	Monidier	M. 21	" " elbow	2 h.	"	Death	19 d.	Sloughing of flaps;
14	Cabot	Jan. 2, 1863	Washerwoman	F. 44	Comp. dislocation at	3 h.	"	Recovery	73 d.	death from pyæmia.
15	Hodges	July 14, 1863	Minor	M. 13	Comp. com. fract. of arm	2 h.	Flap	"	41 d.	Bullet wound.
16	Clark	Aug. 8, 1863	Plumber	M. 28	" " elbow	3 h.	"	"	18 d.	Union by first intention.
17	Gay	Ang. 16, 1863	Minor	F. 3	" " arm	3 h.	Circular Flap	"	28 d.	R. R. accident.
18	"	Sept. 2, 1863	Servant	M. 21	" " elbow	8 h.	"	"	31 d.	Gunshot wound.
19	Hodges	Nov. 26, 1863	Minor	M. 14	" " forearm	2 h.	"	"	22 d.	
20	Cabot	Nov. 28, 1863	Baker	M. 16	Laceration of arm	3 h.	Flap	"	19 d.	
21	Clark	Dec. 3, 1863	Farmer	M. 57	Comp. com. fract. of elbow	2 h.	"	"	60 d.	
22	Hodges	Sept. 12, 1864	Laborer	M. 56	" " arm	2 h.	Circular Flap	"	23 d.	
23	Cabot	Dec. 10, 1864	"	M. 21	" " elbow	2 h.	"	Death	69 d.	
24	Bigelow	Dec. 8, 1864	Brakeman	M. 35	" " arm	9 h.	Flap	"	2 d.	R. R. accident; acute pericarditis.
25	J. M. Warren	Mar. 20, 1867	Operative Mechanic	M. 33	" " forearm	4 h.	Circular Flap	"	69 d.	" ampu. of leg; d. from collapse.
26	Gay	Oct. 29, 1867	Minor	M. 23	" " arm	2 h.	"	Death	28 d.	Amp. of other forearm; death from pyæmia.
27	Cabot	Jan. 11, 1868	Laborer	M. 11	" " forearm	2 h.	"	Recovery	41 d.	Resection of end of bone six mos. later.
28	Hodges	Oct. 16, 1868	Clerk	M. 29	" " arm	2 h.	"	"	15 d.	Comp. com. fract. of fibula; secondary hemorrh.
29	Coolidge	April 9, 1869	"	M. 62	" " elbow	2 h.	"	"	91 d.	Delirium tremens, d. from pyæmia.
30	Hodges	July 22, 1869	Carpenter	M. 35	" " arm	12 h.	"	Death	34 d.	R. R. accident; disl. hip; hosp. gang; pleuritis.
31	Bigelow	Feb. 7, 1870	Fireman	M. 55	" " arm	4 h.	"	Recovery	21 d.	Erysipelas.
32	Hodges	May 2, 1870	Painter	M. 21	" " "	3 h.	"	"	20 d.	
33	"	May 11, 1870	Laborer	M. 17	" " elbow	5 h.	Circular Flap	"	28 d.	
34	Clark	May 31, 1870	Minor	M. 15	Laceration of forearm	5 h.	Circular Flap	"	43 d.	Erysipelas.
35	Cabot	Dec. 20, 1870	Laborer	M. 34	Comp. com. fract. of arm			"		
36	Clark	April 5, 1871	"					"		

Recovered,

29

Died,

7—Total, 36.

Ratio of mortality, 19·44 per cent.

Deaths from Exhaustion, 3
Pyæmia, 3
Collapse, 1

R. R. accidents 8, of which 5 were fatal.

AMPUTATIONS AT THE

AMPUTATIONS OF ARM.—TRAUMATIC—SECONDARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura-	Amputation.	Length of Time.	Details.
						tion.	Method. Place.		
1	Bigelow	May 25, 1847	Laborer	M. 22	Laceration at elbow	14 d.	Circular	86 d.	Gangrene up to elbow before operation.
2	"	Jan. 21, 1860	Pickle-packer	F. 16	Comp. dislocation of elbow	41 d.	"	25 d.	Fracture of internal condyle, not into joint.
3	Clark	April 24, 1861	Fisherman	M. 21	" com. fract. of forearm	14 d.	Flap	65 d.	" " other forearm; gunpowder explosion.
4	Hodges	Aug. 9, 1864	Soldier	M. 19	" elbow	2 mo.	Circular	14 d.	Bullet-wound.
5	Cabot	Oct. 19, 1864	Baker	M. 26	Laceration of arm	21 d.	"	21 d.	R. R. accident; d. from pyæmia proved at autopsy.
6	Bigelow	Nov. 15, 1864	Brakeman	M. 23	Comp. com. fract. of forearm	2 d.	"	23 d.	R. R. accident; d. from pyæmia.
7	Cabot	Dec. 11, 1865	Laborer	M. 52	Fracture of forearm	24 d.	"	24 d.	Amputation of fingers.
8	Coolidge	Sept. 2, 1870	Comp. fracture of hands			30 d.	"	30 d.	R. B. accident 1, which was fatal.
					Death from Pyæmia, 2				
					Exhaustion, 1				

Recovered, 6
Died, 3—Total, 8. Ratio of mortality, 37.50 per cent.

AMPUTATIONS OF ARM.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Dura-	Amputation.	Length of Time.	Details.
						tion.	Method. Place.		
1	J. C. Warren	Aug. 9, 1825	Farmer	M. 57	Tumor of forearm	7 mo.	Flap	42 d.	Family all phthisical.
2	"	April 11, 1827		M. 37	" elbow	7 mo.	"	68 d.	
3	Townsend	June 7, 1839	Spinster	F. 18	Chronic disease of elbow	3 y.	Circular	"	
4	J. C. Warren	Dec. 24, 1840	Farmer	M. 32	" "	5 y.	"	20 d.	
5	Bigelow	Sept. 29, 1847		M. 63	Tumor of elbow	16 y.	"	21 d.	Encephaloid.
6	Townsend	Sept. 15, 1857	"	M. 60	Chronic ulcers of elbow	2 y.	"	14 d.	Cicatrices of burn.
7	Clark	Jan. 25, 1851	Domestic	F. 18	" disease "	1 y.	Flap	86 d.	[haemorrhage.]
8	J. M. Warren	Jan. 31, 1851	Shoemaker	M. 28	" "	7 mo.	Circular	191 d.	Chr. dis. of knee; axillary aneurism; secondary strumous diathesis; much reduced before op.
9	Bigelow	Feb. 11, 1853	Farmer	M. 34	" "	9 mo.	"	23 d.	Strumous diathesis; much reduced before op.
10	Cabot	Nov. 18, 1853	Grocer	M. 40	Necrosis of elbow	10 y.	"	21 d.	Not fully healed, but doing well.
11	J. M. Warren	Nov. 7, 1857	Domestic	F. 18	Tumor of forearm	16 y.	"	14 d.	Encephaloid; erysipelas.
12	Clark	July 10, 1858	Laborer	M. 50	Chronic ulcers of arm	4 mo.	Flap	24 d.	Cicatrices from erysipelas of 7 yrs. ago.
13	Bigelow	Nov. 20, 1858	Teamster	M. 27	" disease of elbow	7 y.	Circular	100 d.	Death 1 year later of phthisis.
14	"	Jan. 28, 1859	Spinster	F. 48	Neuralgia of arm	14 y.	"	114 d.	Died 1 year later of phthisis.
15	J. M. Warren	Oct. 26, 1859	Shoemaker	M. 33	Caries of humerus	15 mo.	Flap	42 d.	Needle found in contact with nerve in fore finger.
16	Bigelow	July 13, 1860	Housewife	F. 57	Tumor of forearm	18 mo.	Circular	37 d.	Several secondary hemorrhages.
17	Gay	May 4, 1861	Minor	F. 6	Burns of elbow	5 mo.	Flap	56 d.	Encephaloid; tumor first appeared 8 years ago.
18	Bigelow	Feb. 10, 1862	"	F. 7	Tumor of stump	6 mo.	Circular	66 d.	Amp. of forearm 3 yrs. ago for tumor of hand.
19	Gay	Aug. 8, 1862	Farmer	M. 36	Chronic disease of wrist	3 y.	"	53 d.	
20	"	Sept. 12, 1862	Soldier	M. 51	Ulcer of stump	28 mo.	Flap	57 d.	Primary amp. for bullet wound.
21	Bigelow	Mar. 21, 1863	Clerk	M. 29	Tumor of wrist	6 mo.	Circular	24 d.	Medullary cancer.
22	Cabot	Nov. 7, 1863	Minor	F. 11	Neuralgia of stump	2 mo.	"	18 d.	Neuralgia unrelieved 8 yrs. later.
23	"	May 4, 1864	Laborer	M. 21	Neuroma of " "	8 y.	"	37 d.	Amp. of forearm 8 yrs. ago.
24	Bigelow	Dec. 19, 1864	Domestic	F. 28	Ankylosis of elbow	3 y.	Flap	45 d.	
25	Hodges	May 18, 1864	Minor	M. 18	Conical stump	9 y.	Circular	19 d.	Nearly healed.
26	Cabot	Jun. 6, 1865	Spinster	F. 40	Tumor of forearm	2 y.	"	94 d.	Erysipelas.
27	"	Feb. 17, 1865	Laborer	M. 32	Ankylosis of elbow	15 mo.	"	10 d.	Death from pyæmia.
28	Bigelow	Apr. 26, 1865	Housewife	M. 21	Ununited fracture of arm	25 y.	"	150 d.	
29	"	Nov. 10, 1867	Leather-splitter	M. 33	Neuritis of stump	6 mo.	Flap	25 d.	
30	Clark	June 3, 1870	Carpenter	M. 36	Tumor of elbow	17 mo.	Circular	61 d.	Medullary sarcoma.
31	Bigelow	Jan. 26, 1871	Farmer	F. 80	Tumor of forearm	9 mo.	"	25 d.	Myeloid from radius.
32	Cabot	Mar. 14, 1871	Domestic		Neuritis of arm	3 y.	Flap	2 d.	
					Death from Exhaustion, 3				
					Deaths " Pyæmia, 1				
					Causes of Amputation were:	Chr. dis. of joint 7	3 cases.	Caries 1 case.	Conical stump 1
						"	"	Burn 1 "	" Neuromata 1
						"	"	"	" Unu. fract. 1 "
						"	"	"	" Necrosis 1 "

Recovered, 28
Died, 4—Total, 32.
Ratio of mortality, 12.50.

Causes of Amputation were:

MASSACHUSETTS GENERAL HOSPITAL.

APPENDIX C Table 6.

Table 19

AMPUTATIONS AT THE

Table 8. AMPUTATIONS OF FOREARM.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation-Method.	Result.	Length of Time.	Details.
1	J. C. Warren	Nov. 3, 1834	Minor Ship-joiner	F. 14	Necrosis of carpus	18 mo.	Circular	Recovery	18 d.	Kicked by a cow.
2	Townsend	Aug. 6, 1839	Ulcer of hand	M. 72	Ulcer of hand	"	"	"	20 d.	After treatment of small tumor by empiric.
3	"	Mar. 14, 1842	Farmer	M. 56	Tumor of hand	"	"	"	14 d.	Osteo-sarcoma; not fully healed.
4	"	May 4, 1843	Shoemaker	M. 14	Necrosis of carpus	10 mo.	"	"	25 d.	"
5	Hayward	May 15, 1848	Housewife	M. 26	Tumor of hand	12 y.	"	"	24 d.	"Malignant" erysipelas.
6	Bigelow	Dec. 30, 1855	Farmer	M. 47	Necrosis of carpus	3 y.	"	"	24 d.	Wrist jammed.
7	Clark	April 2, 1856	Mechanic	M. 25	"	2 y.	"	"	25 d.	"Scrofulous."
8	Townsend	Aug. 21, 1858	Dress maker	F. 31	Tumor of wrist	5 mo.	"	"	23 d.	"Cancer."
9	Cabot	July 31, 1858	Book-agent	F. 36	Caries of carpus	2 y.	Flap wr. It.	"	33 d.	Window fell upon wrist.
10	Clark	Mar. 29, 1859	Laborer	M. 30	Necrosis of " "	6 mo.	"	"	52 d.	After vaccination; reamp. 2 y. for recurrence.
11	Bigelow	Dec. 1, 1859	Minor	M. 5	Tumor of hand	4 y.	Circular	"	51 d.	Originating in sprain.
12	"	Jan. 19, 1861	Laborer	M. 36	Chronic dis. of wrist-joint	1 y.	"	"	59 d.	Erysipelas.
13	Cabot	Sept. 24, 1861	Machinist	M. 63	Necrosis of carpus	3 y.	"	"	13 d.	Enchondroma.
14	Bigelow	April 11, 1862	Spinster	F. 24	Tumor of forearm	4½ y.	"	"	30 d.	Epithelial; sloughing of flaps.
15	Townsend	Aug. 8, 1862	Shoemaker	M. 72	" hand	3 y.	"	"	58 d.	Following burns; erysipelas.
16	Cabot	Oct. 3, 1862	Laborer	M. 40	Ulcers of forearm	4 mo.	"	"	23 d.	"Cancer."
17	Bigelow	Dec. 20, 1862	Weaver	M. 50	Tumor of wrist	40 y.	"	"	91 d.	Extensive sloughing of flaps.
18	J. M. Warren	Feb. 11, 1863	Laborer	M. 23	Abscess of hand	2 mo.	"	"	88 d.	Albumannia; secondary hemorrhages; erysip.
19	Bigelow	Feb. 12, 1863	Carpenter	M. 52	Necrosis of carpus	9 mo.	"	"	37 d.	Slight sloughing of flaps.
20	Cabot	Feb. 28, 1863	Carpenter	M. 30	" "	6 mo.	"	"	Death	Following penknife wound of wrist.
21	J. M. Warren	Mar. 23, 1863	Carpenter	M. 62	" "	4 mo.	Flap	Recovery	34 d.	Death
22	"	May 2, 1865	Laborer	M. 62	" "	2 y.	Circular	Recovery	21 d.	Pickaxe wound of hand.
23	Clark	May 18, 1865	Cook	M. 48	" metacarpus	1 y.	"	"	42 d.	"
24	Cabot	Dec. 18, 1865	Abscess of hand	M. 53	"	7 wk.	Flap	Death	29 d.	Death from pyamia, as shown at autopsy.
25	Hodges	Sept. 21, 1867	Fisherman	M. 58	"	6 wk.	Circular	Recovery	34 d.	Primary amp. of hand for horns of 27 y. duration.
26	"	April 12, 1871	Clerk	M. 32	Tumor of stump	1½ y.	Flap	"	"	Bullet wound of wrist.
27	Clark	April 15, 1871	Semptress	F. 47	Caries of carpus	9 mo.	"	"	"	"

Deaths from Exhaustion, 3
Pyämia, 1Causes of Amputation were Necrosis in 11 cases.
Tumors 8
Abscesses 3
Ulcers 2
Caries 2
Chr. dis. of joint 1 "

AMPUTATIONS AT HIP-JOINT.—TRAUMATIC—PRIMARY AND PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Injury or Disease.	Duration.	Amputation-Method.	Result.	Length of Time.	Details.
1	J. M. Warren	June 19, 1858	Minor	M. ch.	Comp. fract. of thigh	1 h.	"	Death	13 d.	Extensive laceration of hip; d. from exhaustion.
2	"	Mar. 23, 1859	Shoemaker	M. 17	Tumor of thigh	7 mo.	Flap	Recovery	42 d.	" " not fully healed; return of disease
3	Hodges	May 29, 1863	Clerk	M. 31	" stump	5 mo.	"	"	60 d.	in stump and in left breast two yrs. later.

1 Traumatic—Frinary amp. with fatal result.
2 Pathological (Tumors) " favorable result.

1 death from Exhaustion.

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Table 10.—Amputations of Thigh.—Traumatic—Primary.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura- tion.	Amputation. Method, Place.	Result. Length of time.	Details.
1	J. C. Warren	May 30, 1829	Painter	M. 23	Comp. com. fract. of leg	20 h.	Circular	Death	Delirium; pus in wrist and hip joint.
2	Hayward	June 28, 1831	Minor	M. 10	" " both	12 h.	Flap	Recovery 40 d.	Sloughing of flaps; stump sound in 1852.
3	J. C. Warren	June 2, 1836	Laborer	M. 31	Comp. fract. of leg	18 h.	Fl & Cir.	Death 9 h.	R. R. accident; double amput.; d. from collapse.
4	J. C. Warren	Sept. 24, 1837	Painter	M. 39	Comp. com. fract. of leg	6 h.	Circular	Recovery 125 d.	R. R. accident; great loss of blood before op.
5	J. C. Warren	Nov. 5, 1838	Painter	M. 27	Comp. com. fract. of leg	21 h.	Flap	Death 6 h.	Laceration of scalp; delirium; d. fr. collapse.
6	"	Mar. 6, 1845	Laborer	M. 53	" " knee	17 h.	Circular	Recovery 135 d.	R. R. accident; toe on other foot crushed.
7	J. M. Warren	April 6, 1847	"	M. 30	" " leg	8½ h.	Flap	Death 2 d.	extensive scalp-wound; d. fr. coll.
8	"	Mar. 31, 1848	Brakeman	M. 20	" " " "	12 h.	Circular	Recovery 38 d.	Sloughing of flaps; resection of end of femur.
9	"	April 7, 1848	Artist	M. 33	" " " "	12 h.	Circular	Death 5 d.	Sloughing of flaps; death from shock.
10	Parkman	Nov. 17, 1848	Teamster	M. 36	Lacer. thigh & rmp. fem. art.	16 h.	Circular	Recovery 141 d.	R. R. accident; amp. of other leg; d. fr. collapse.
11	J. M. Warren	April 2, 1849	Mechanic	M. 40	Comp. com. fract. of leg	6 h.	Flap	Death 1 h.	R. R. accident; amp. of other leg; d. fr. collapse.
12	Parkman	June 19, 1849	Engineer	M. 39	" " " "	23 h.	Circular	Death 5 h.	" " " "
13	"	Dec. 15, 1849	Laborer	M. 21	" " " "	3 h.	Circular	Recovery 48 d.	Sloughing of flaps; contusion about knee.
14	Townsend	Aug. 8, 1851	Mechanic	M. 35	" " " "	3 h.	Circular	Death 77 d.	R. R. accident; amp. of other leg; d. fr. collapse.
15	Bigelow	Nov. 3, 1851	Seaman	M. 84	" " " "	3 h.	Circular	Death 1 d.	Cystitis from enlarged prostate gland.
16	J. M. Warren	April 10, 1852	Mechanic	M. 25	" " " "	3 h.	Circular	Recovery 23 d.	" " " "
17	Parkman	July 1, 1852	Laborer	M. 30	" " " "	3 h.	Circular	Death 29 d.	Fracture of jaw and ulna; erysipelas.
18	J. M. Warren	Sept. 8, 1852	Seaman	M. 22	" " " "	3 h.	Circular	Sloughing of flaps; feeble when discharged.	" " " "
19	"	Nov. 27, 1852	Launderess	F. 22	Comp. dislocation at knee	23 h.	Flap	Relieved 46 d.	Fracture of end of femur.
20	Bigelow	Feb. 1, 1854	Laborer	M. 33	Comp. com. fract. of thigh	1 h.	Circular	Recovery 71 d.	" " " "
21	Clark	May 29, 1854	"	M. 22	Laceration of thigh and leg	2 h.	Flap	Death 19 d.	" " " "
22	"	June 19, 1854	Minor	M. 4	Comp. com. fract. of leg	1½ h.	Circular	Recovery 57 d.	R. R. accident; delirium tremors.
23	Townsend	July 3, 1855	Laborer	M. 30	" " " "	7 h.	Flap	Death 26 d.	Secondary hemorrhage; gangrene.
24	Gay	Sept. 19, 1855	Mechanic	M. 45	" " " "	5 h.	Circular	Recovery 159 d.	R. R. accident; pneum.; resect. of end of femur.
25	"	Oct. 2, 1855	"	M. 20	" " " "	2 h.	Flap	Death 126 d.	[d. from shock]
26	Townsend	Oct. 8, 1855	"	M. 25	" " " "	2 h.	Circular	Recovery 306 d.	" " " "
27	Clark	June 21, 1856	Laborer	M. 38	" " " "	2 h.	Flap	Death 124 d.	" " " "
28	Gay	Aug. 11, 1856	Minor	M. 4	" " " "	20 h.	Circular	Death 195 d.	" " " "
29	Townsend	Sept. 11, 1856	Brakeman	M. 23	" " " "	3 h.	Flap	Death 140 d.	" " " "
30	Bigelow	Dec. 1, 1856	Widow	F. 42	" " " "	15 h.	Circular	Death 61 d.	" " " "
31	Gay	Mar. 2, 1857	Carpenter	M. 28	" " " "	2 h.	Flap	Recovery 186 d.	" " " "
32	Townsend	Aug. 30, 1858	Minor	M. 6	" " " "	12 h.	Circular	Death 39 d.	R. R. accident; delirium.
33	Gay	Sept. 9, 1858	Seaman	M. 36	" " " "	2 h.	Flap	Recovery 134 d.	" " " "
34	"	Sept. 21, 1858	Minor	F. 10	" " " "	1 h.	Circular	Death 1 d.	Fracture of elbow; delirium; d. from collapse.
35	"	Dec. 9, 1858	"	M. 11	" " " "	24 h.	Flap	Recovery 190 d.	Erysipelas.
36	Clark	May 5, 1859	Rigger	M. 32	" " " "	2 h.	Circular	Death 91 d.	" " " "
37	"	June 21, 1859	Teamster	M. 34	" " " "	2 h.	Flap	Death 40 d.	secondary hemorrhage; del. trem.
38	Gay	Oct. 10, 1859	Brewer	M. 32	" " " "	2 h.	Circular	Death 10 h.	Double amputation; d. from collapse.
39	Bigelow	Dec. 8, 1859	Brakeman	M. 30	" " " "	both legs	Circular	Death 11 d.	Listfranc's amput. of other foot.
40	Townsend	Sept. 5, 1860	Laborer	M. 51	" " " "	2 h.	Circular	Recovery 94 d.	R. R. accident; comp. con. fract. of other ankle.
41	Bigelow	Jan. 29, 1861	Inspector	M. 40	" " " "	2½ h.	Flap	Death 42 d.	" " " "
42	Clark	April 27, 1861	Minor	M. 24	" " " "	1½ h.	Circular	Death 1 d.	" " " "
43	Gay	Oct. 21, 1861	Laborer	M. 24	" " " "	2 h.	Flap	Recovery 190 d.	laceration of other leg.
44	J. M. Warren	June 6, 1862	"	M. 40	" " " "	2 h.	Flap	Death 91 d.	" " " "
45	"	July 9, 1862	Minor	M. 10	" " " "	2 h.	Circular	Death 40 d.	" " " "
46	"	June 20, 1863	Ervard-boy	M. 16	" " " "	2 h.	Circular	Death 129 d.	obstinate vomiting.
47	Hodges	July 11, 1863	Minor	M. 5	" " " "	2 h.	Circular	Death 11 d.	" " " "
48	"	Sept. 21, 1863	Laborer	M. 32	" " " "	2 h.	Circular	Recovery 94 d.	" " " "
49	J. M. Warren	April 9, 1864	Driver	M. 38	" " " "	2 h.	Circular	Death 3 d.	" " " "

AMPUTATIONS AT THE

Table 10 (concluded.)

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura-tion.	Amputa-tion, Method, Place.	Result.	Length of Time.	Details.	
50	J. M. Warren	June 2, 1864	Seaman	M. 24	Comp. com. frac. of both legs	2 h.	Circular	Death	23 d.	Double amputation.	
51	Hodges	April 18, 1865	Minor	F. 2	" " leg	1½ h.	"	Recovery	28 d.	R. R. accident.	
52	"	July 23, 1865	"	M. 13	" "	2 h.	"	Death	16 d.	D. from tetanus.	
53	Cabot	Dec. 6, 1865	Brakeman	M. 21	" "	20 h.	Flap	Recovery	25 d.	R. R. accident.	
54	Hodges	Oct. 17, 1867	"	M. 38	" "	2 h.	"	Death	72 d.	Pulmonary complication; d. from pyæmia.	
55	"	Oct. 6, 1869	Laborer	M. 50	Laceration of thigh	4 h.	Circular	Recovery	5 d.	Resection of end of femur.	
56	Gay	July 18, 1870	Minor	M. 9	Comp. com. fract. of leg	2 h.	"	Death	86 d.	R. R. accident; exten. lac. of thigh; d. fr. shock.	
57	Coolidge	July 23, 1870	Swiss	M. 40	Knee joint opened	1 h.	Flap	Recovery	2 h.	Fract. of other ankle; d. from pyæmia.	
58	Hodges	Aug. 11, 1870	Tailor	M. 30	Comp. com. fract. of leg	2 h.	Circular	Death	2 h.	R. R. accident; double amp.; d. from shock.	
59	Bigelow	Nov. 22, 1870	Minor	M. 11	" both knees	4 h.	"	Recovery	15 h.	B. R. accident; double amp.; d. from shock.	
60	Cabot	Jan. 20, 1871	"	M. 13	" thigh	3 h.	Flap	Death	Not fully healed; resection of end of femur.	57 d.	
Recovered, 34		Deaths from Collapse, 10		R. R. accidents, 27, of which 8 were fatal.							
Died, 25		Deaths from Exhaustion, 8									
Relieved, 1—Total, 60		Shock, 4									
Ratio of mortality, 42.37 per cent.		Pyæmia, 2									
		Tetanus, 1									

AMPUTATIONS OF THIGH.—TRAUMATIC—SECONDARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura-tion.	Amputa-tion, Method, Place.	Result.	Length of Time.	Details.	
1	J. C. Warren	Nov. 19, 1824	Boatman	M. 30	Comp. fract. of leg	15 d.	Flap	Death	12 h.	D. from tetanus, developed before operation.	
2	"	Nov. 18, 1828	Laborer	M. 17	Lacer. of leg into knee-joint	25 h.	Circular	Recovery	37 d.	Premature explosion while blasting.	
3	Townsend	Aug. 7, 1845	"	M. 21	Comp. com. fract. of leg	3 mo.	"	Death	63 d.	Delirium tremens; erysipelas.	
4	J. M. Warren	Jan. 30, 1851	"	M. 21	"	47 d.	"	Recovery	23 d.	General anasarca.	
5	Clark	Nov. 21, 1851	Minor	M. 12	Laceration of leg	121 d.	"	Death	52 d.	Bed sores; erysipelas.	
6	Parkman	July 13, 1852	Mechanic	M. 24	Comp. fract. of leg	42 d.	"	Death	23 d.	R. R. accident; thoracic complications.	
7	Gay	Oct. 15, 1857	Stevedore	M. 51	Comp. com. fract. of leg	39 h.	"	Recovery	42 d.	Delirium tremens.	
8	J. M. Warren	April 11, 1857	"	M. 48	"	2 mo.	"	Death	119 d.	Dislocation of shoulder also.	
9	Bigelow	Jan. 3, 1859	Laborer	M. 45	Comp. fract. & lac. thigh	10 d.	"	Death	6 d.	Delirium tremens; fract. of 4 ribs.	
10	"	Nov. 20, 1861	"	M. 28	Comp. fract. of knee	16 d.	"	Death	6 d.	Bullet wound; d. from pyæmia. (?)	
11	Hodges	July 16, 1863	Lieutenant	M. 29	Commun. fract. of leg	4 d.	"	Recovery	155 d.	R. R. accident; phlebitis; diffuse cellular inflam.	
12	"	Oct. 15, 1864	Laborer	M. 56	Fracture of leg	27 d.	"	Death	3 d.	Epilepsy; at aut. enceph. tumors found in brain &	
13	J. M. Warren	Mar. 30, 1865	Teamster	M. 57	Comp. com. fract. of leg	24 d.	"	Death	7 d.	R. R. accident; secondary hamorr. [both lungs.]	
14	"	May 19, 1865	Laborer	M. 28	Bullet in knee	18 d.	Flap	"	4 d.	Bullet wound of buttock; fract. of pelvis.	
15	Hodges	Sept. 15, 1866	Trader								
Recovered, 6		Deaths from Exhaustion, 6									
Died, 9—Total, 15		Deaths from Tetanus, 1									
Ratio of mortality, 60 per cent.		Deaths from Enceph. growth in brain, 1									
		Deaths from Pyæmia, 1									

Table 11.

MASSACHUSETTS GENERAL HOSPITAL.

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Table 12. AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Dura-	Amputation.	Length of Time.	Details.
						tion.	Method. Place.		
1	J. C. Warren	Nov. 13, 1823		F. 42	Chronic disease of knee-joint	5 mo.	Circular Flap	223 d.	Secondary haemorrhage.
2	"	Mar. 25, 1824		M. 16	Deformity of knee	7 Y.	"	35 d.	Venesectio ad xii. oz.
3	"	May 29, 1824		M. 18	Chronic disease of knee-joint	18 mo.	"	3 d.	Obstinate vomiting.
4	"	Dec. 9, 1826		M. 21	"	3 y.	"	65 d.	Secondary haemorrhage.
5	"	May 9, 1827		M. 21	Ulcers on legs	4 mo.	"	73 d.	Great hemorrhage during op. D. fr. exhaustion.
6	"	Dec. 8, 1827		M. 21	Chronic disease of knee-joint	3 mo.	Flap	40 d.	Deformity caused by dislocation of patella.
7	"	May 9, 1828	Shoemaker	M. 23	"	10 y.	"	40 d.	Relieved " "
8	"	Dec. 6, 1828		M. 24	Deformity of knee	16 mo.	Flap	Recovery " 103 d.	Death " "
9	"	Dec. 5, 1829	Servant	M. 12	Chronic disease of knee-joint	8 mo.	"	180 d.	Night sweats. D. fr. exhaustion.
10	"	Nov. 27, 1830	Shoemaker	M. 23	"	3 y.	Flap	Recovery 49 d.	Recovery " 92 d.
11	"	Jan. 2, 1832		M. 13	"	5 y.	Circular	"	Secondary hemorrhage.
12	Hayward	April 12, 1832	Cooper	M. 26	"	7 y.	"	"	Venesectio ad xiv. oz.
13	J. C. Warren	Nov. 24, 1832		F. 27	"	6 y.	"	"	Secondary hemorrhage.
14	"	Aug. 28, 1832		M. 21	"	23 y.	Flap	"	Secondary hemorrhage.
15	"	Sept. 26, 1832	Grocer	M. 37	Necrosis of tibia	3 mo.	Circular	"	Secondary hemorrhage.
16	"	Jan. 11, 1833	Domestic Mechanic	F. 21	Chronic disease of knee-joint	20 y.	Flap	"	Secondary hemorrhage.
17	Hayward	May 8, 1833	Spinner	M. 26	"	5 y.	Circular	"	Secondary hemorrhage.
18	J. C. Warren	Dec. 28, 1833	Farmer	F. 23	"	4 y.	"	"	Secondary hemorrhage.
19	"	Jan. 11, 1834	Farmer	M. 35	Tumor of leg	44 y.	"	"	Secondary hemorrhage.
20	"	Dec. 4, 1835	Minor	F. 13	Chronic disease of knee-joint	2½ y.	"	"	Secondary hemorrhage.
21	J. C. Warren	Dec. 16, 1836	Tailor	F. 24	Necrosis of femur	13 y.	Flap	Recovery 162 d.	Resection of end of femur.
22	Hayward	June 10, 1837	Carpenter	M. 27	Chronic disease of knee-joint	4 y.	Circular	Recovery 27 d.	Rheumatism.
23	"	Nov. 4, 1837	Med. student	M. 22	"	5 y.	"	"	[opened before op.]
24	Townsend	May 25, 1839	Farmer	M. 37	Ulcer of leg	24 y.	"	"	Tumor removed previously. D. fr. pyæmia developed.
25	Hayward	1839	Laborer	M. 23	Necrosis of femur	5 y.	"	"	Recovery 7 d.
26	"			M. 34	Ulcers of leg	4 y.	"	"	Death 53 d.
27	"	Mar. 16, 1842	Machinist	M. 19	Chronic disease of knee-joint	13 y.	"	"	Alcoholic habit. D. fr. exhaustion caused by hæmorrhage, &c.
28	J. C. Warren	Nov. 16, 1842	Tailor	F. 17	"	34 mo.	Flap	Recovery 47 d.	Secondary hemorrhage.
29	"	Oct. 14, 1843	Minor	Packer	"	"	"	"	Secondary hemorrhage.
30	Townsend	Nov. 7, 1844	Packer	M. 20	"	"	"	"	Secondary hemorrhage.
31	J. C. Warren	June 17, 1845	Laborer	M. 24	"	"	"	"	D. fr. exhaustion.
32	"	Aug. 5, 1845	Sailor	M. 21	Gangrene of leg	2 y.	"	"	Thigh caught in coil of rope.
33	"	Nov. 8, 1845	Minor	M. 19	Deformity and ulcer of leg	3 w.	"	"	Secondary hemorrhage.
34	Hayward	Dec. 27, 1845	Domestic Physician	M. 12	Chronic disease of knee-joint	6 y.	"	"	[First patient to whom ether was administered for art. Phlebitis and embolism shown at autopsy.]
35	Townsend	May 23, 1846	Carver	F. 21	"	3 y.	Flap	Recovery 46 d.	Secondary hemorrhage.
36	J. M. Warren	May 31, 1847	Mechanic	M. 60	Necrosis of leg	14 y.	Circular	Death 29 d.	Phlebitis and embolism shown at autopsy.
37	"	July 12, 1847	Seaman	M. 39	Deformity from injury	9 mo.	Flap	Death 11 d.	Removed 11 d.
38	Hayward	Aug. 27, 1847	Laborer	M. 25	Tumor of leg	2 y.	"	Recovery 51 d.	Death 6 d.
39	Parkman	Sept. 1, 1847	Seaman	M. 34	Chronic disease of knee-joint	2 y.	"	Death 6 d.	Following ligation of fem. artery for traum. aneu-
40	J. C. Warren	Nov. 27, 1847	Laborer	M. 23	Gangrene of leg	3 w.	"	Recovery 208 d.	Inguinal glands inflamed.
41	Townsend	Feb. 3, 1848	Physician	M. 22	Chronic disease of knee-joint	4 mo.	Circular	Death 35 d.	Death 281 d.
42	J. M. Warren	June 7, 1848	Shoemaker	M. 23	"	2 y.	Flap	Recovery 81 d.	Death 60 d.
43	"	Mar. 31, 1849	Minor	M. 11	"	14 y.	"	Recovery 39 d.	Erysipelas. Resection of end of femur.
44	Parkman	May 9, 1849	Clerk	M. 44	Necrosis of femur	"	"	"	Nearly whole of fibula absorbed, encephaloid.
45	Townsend	Sept. 4, 1849	Shoemaker	M. 22	Tumor of tibia	15 y.	"	"	Fractured patella.
46	J. M. Warren	Sept. 8, 1849	Merchant	M. 33	Chronic disease of knee-joint	1 y.	"	"	Great suppuration—resection of end of femur.
47	"	Oct. 17, 1849	Trader	M. 48	Necrosis of femur	30 y.	"	"	" Malignant." Great hemorrhage. D. fr. pyæmia.
48	"	Oct. 28, 1849	Mechanic	M. 27	Tumor of patella	10 mo.	"	Death 60 d.	Ulcers on thigh. D. fr. exhaustion.
49	"	Feb. 3, 1850	Farmer	M. 54	Chronic disease of knee-joint	5 y.	"	Recovery 80 d.	Ulcers on thigh. D. fr. exhaustion.
	"	Mar. 20, 1850	Spinster	F. 24	Deformity from cicatrix	14 y.	Flap	Death 11 d.	

AMPUTATIONS AT THE

Table 12 (continued.)

No.	Operator.	Date.	Occupation.	Sex	Age.	Disease.	Amputation.	Duration.	Method.	Place.	Result.	Length of Time.	Details.
50	Townsend	Mar. 22, 1850	Minor	M.	12	Caries of femur	Circular	2 mo.	Recovery	39 d.			
51	Hayward	Oct. 10, 1850	Domestic	F.	26	Chronic disease of knee-joint	Flap	"	"	99 d.			
52	J. M. Warren	Dec. 18, 1850	Mechanic	M.	32	Tumor of leg	Circular	"	"	45 d.			
53	Bigelow	Feb. 14, 1851	Laborer	M.	29	Ulcers of stump	"	"	"	46 d.			
54	J. M. Warren	June 10, 1851	Mechanic	M.	43	Tumor of knee	"	"	"	27 d.			
55	Bigelow	Dec. 5, 1851	Laborer	M.	36	Chronic disease of knee-joint	"	"	"	Death			
56	J. M. Warren	June 26, 1852	Minor	M.	19	"	"	"	"	Recovery	38 d.		
57	Parkman	Sept. 8, 1852	Mechanic	M.	22	"	"	"	"	Death	7 d.		
58	Townsend	Sept. 25, 1852	Carrier	M.	59	Ulcers of leg	"	"	"	Recovery	36 d.		
59	Parkman	Oct. 27, 1852	Housewife	F.	41	"	"	"	"	Recovery	38 h.		
60	J. M. Warren	April 19, 1852	Seaman	M.	21	Chronic disease of knee-joint	"	"	"	"	"		
61	Clark	May 18, 1853	Semiprisoner	F.	24	"	"	"	"	"	"	43 d.	
62	Bigelow	Nov. 28, 1853	Domestic	F.	40	"	"	"	"	"	"	64 d.	
63	Cabot	Feb. 18, 1854	Minor	F.	16	"	"	"	"	"	"	51 d.	
64	J. M. Warren	Mar. 1, 1854	Clergyman	M.	54	Tumor of knee	"	"	"	"	"	391 d.	
65	Parkman	July 29, 1854	Carrier	M.	17	Chronic disease of knee-joint	"	"	"	"	"	34 d.	
66	Bigelow	Jan. 5, 1856	Farmer	M.	50	Necrosis of femur	"	"	"	"	"	253 d.	
67	Townsend	Aug. 8, 1856	Mechanic	M.	21	"	"	"	"	"	"		
68	"	Oct. 22, 1856	Laborer	M.	30	Chronic disease of knee-joint	"	"	"	"	"	Strumous diathesis.	
69	J. M. Warren	Feb. 4, 1857	Housewife	F.	40	"	"	"	"	"	"	Transfusion. Great haemorrhage. D. fr. collapse.	
70	Bigelow	Feb. 22, 1857	Domestic	F.	22	"	"	"	"	"	"	Hæmorrhage.	
71	"	Feb. 25, 1857	Laborer	M.	45	"	"	"	"	"	"	Phthisical.	
72	J. M. Warren	April 4, 1857	Shoemaker	M.	26	Ulcers of leg	"	"	"	"	"	Death	
73	Townsend	May 9, 1857	Semiprisoner	F.	27	Chronic disease of knee-joint	"	"	"	"	"	33 d.	
74	"	Aug. 8, 1857	Minor	F.	11	Tumor of leg	"	"	"	"	"	Hamorrhage.	
75	Bigelow	Sept. 15, 1857	"	F.	15	Chronic disease of knee-joint	"	"	"	"	"	Osteo-sarcoma.	
76	Townsend	Oct. 29, 1857	Domestic	F.	30	"	"	"	"	"	"	D. fr. return of dis. 6 mos. later.	
77	"	Aug. 14, 1858	Minor	M.	15	Tumor of thigh	"	"	"	"	"	Sequestrum drawn fr. shaft of femur.	
78	Bigelow	Sept. 25, 1858	Stove-dealer	M.	21	Chronic disease of knee-joint	"	"	"	"	"	Osteo-sarcoma.	
79	Townsend	Oct. 20, 1858	Laborer	M.	25	"	"	"	"	"	"	Death	
80	Cabot	Nov. 5, 1858	Minor	M.	12	Necrosis of tibia	"	"	"	"	"	7 years later.	
81	"	Nov. 20, 1858	Currier	M.	30	Chronic disease of knee-joint	"	"	"	"	"	Neutromata excised 7 years later.	
82	Bigelow	Feb. 25, 1859	Paper-carrier	F.	40	"	"	"	"	"	"	Erysipelas.	
83	J. M. Warren	Mar. 30, 1859	Laborer	M.	23	Tumor of thigh	"	"	"	"	"	Bronchitis.	
84	Clark	May 11, 1859	Painter	M.	33	"	"	"	"	"	"	Tuberculosis.	
85	"	May 27, 1859	Shoecutter	M.	30	Necrosis of tibia	"	"	"	"	"	Osteoid cancer." Hæmorrhage.	
86	J. M. Warren	July 21, 1859	Minor	F.	8	"	"	"	"	"	"	"	
87	Clark	Aug. 12, 1859	Farmer	M.	18	Tumor of femur	"	"	"	"	"	Extensive sloughing of flaps.	
88	Gay	Aug. 24, 1859	Laborer	M.	21	Necrosis of tibia	"	"	"	"	"	"	
89	"	Sept. 22, 1859	Student	M.	20	Chronic disease of knee-joint	"	"	"	"	"	"	
90	Townsend	Oct. 18, 1859	Marble-polisher	M.	26	Necrosis of tibia	"	"	"	"	"	"	
91	J. M. Warren	Nov. 2, 1859	Cabinet-maker	M.	21	Tumor of leg	"	"	"	"	"	"	
92	Bigelow	Nov. 14, 1859	Tanner	M.	50	Chronic disease of knee-joint	"	"	"	"	"	"	
93	Cabot	Nov. 23, 1859	Housewife	F.	28	Tumor of leg	"	"	"	"	"	"	
94	J. M. Warren	Nov. 30, 1859	Widow	F.	45	Chronic disease of knee-joint	"	"	"	"	"	"	
95	Bigelow	Jan. 12, 1860	Lit-housekeeper	M.	26	Tumor of leg	"	"	"	"	"	"	
96	"	Jan. 19, 1860	Housewife	F.	34	Chronic disease of knee-joint	"	"	"	"	"	"	
97	J. M. Warren	Mar. 3, 1860	"	F.	23	Phlegmasia dolens	"	"	"	"	"	"	
	"	Mar. 22, 1860		F.	47	Necrosis of tibia	"	"	"	"	"	"	

MASSACHUSETTS GENERAL HOSPITAL.

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Table 12 (continued.) AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Length	Amputation. Method. Place.	Duration.	Result.	Time.	Details.
29	Clark	May 2, 1860	Seaman	M. 31	Chronic disease of knee-joint	2 y.	Flap	2-3	Recovery	188 d.	Disease of spine also.
100	Gay	June 5, 1860	Machinist	M. 43	" " "	4 y.	Circular	2-3	Death	2 d.	Secondary haemorrhage. Autopsy showed tubercles in both lungs.
101	"	July 9, 1860	Domestic	F. 19	Traumatic paralysis of leg	10 y.	"	2-3	Recovery	152 d.	Hospital gangrene.
102	Townsend	Oct. 13, 1860	Widow	F. 43	Chronic disease of knee-joint	1 y.	Circular	2-3	Death	103 d.	Sloughing of flaps.
103	J. M. Warren	Mar. 19, 1861	Laborer	M. 53	" " "	3 y.	Flap	2-3	Recovery	82 d.	Great prostration before op. D. fr. exhaustion
104	"	April 22, 1861	Domestic	F. 26	Excision of knee-joint	10 mo.	Circular	2-3	Death	9 d.	[artery.]
105	Bigelow	Nov. 7, 1861	"	F. 34	Painful stamp of leg	12 y.	Flap	2-3	Recovery	60 d.	Secondary haemorrhages necess. ligature of fem.
106	J. M. Warren	Feb. 13, 1862	Cigar-maker	M. 26	Necrosis of femur	6 y.	Flap	2-3	"	81 d.	Erysipelas.
107	Clark	April 16, 1862	Farmer	M. 19	" " "	15 mo.	Circular	2-3	"	48 d.	Secondary haemorrhages.
108	Townsend	July 14, 1862	Domestic	F. 21	Tumor of leg	9 mo.	Flap	2-3	"	76 d.	Erysipelas.
109	Clabot	Nov. 26, 1862	Painter	M. 35	Necrosis of tibia	1 y.	Circular	2-3	"	28 d.	Sec. haemorrhage.
110	Gay	Oct. 3, 1862	Laborer	M. 25	" " femur	2 y.	Flap	2-3	"	86 d.	Sec. haemorrhage.
111	J. M. Warren	April 22, 1863	Operative	F. 23	" " tibia	5 y.	Flap	2-3	"	26 d.	Scarlatina.
112	Clark	May 22, 1863	Nail-maker	M. 43	Chronic disease of knee-joint	5 y.	Flap	2-3	"	59 d.	Sec. haemorrhages.
113	J. M. Warren	May 26, 1863	Minor	M. 19	Ankylosis at knee-joint	9 mo.	Flap	2-3	"	30 d.	Tubercles and pyæemic deposits found at autopsy.
114	Bigelow	July 24, 1863	Farmer	M. 22	Caries of tibia	9 mo.	Flap	2-3	"	58 d.	Sec. haemorrhage. Erysipelas. D. fr. exhaustion.
115	"	Nov. 2, 1863	Spinner	F. 22	Chronic disease of knee-joint	12 y.	Flap	2-3	"	55 d.	Sec. haemorrhage. D. fr. pyæmia as shown at autopsy.
116	"	Nov. 24, 1863	Farmer	M. 27	Necrosis of tibia	13 y.	Flap	2-3	"	93 d.	Tubercles found in l. lung at autopsy.
117	J. M. Warren	Feb. 17, 1864	Trader	M. 26	" " femur	18 mo.	Circular	2-3	"	64 d.	Encephaloid. D. fr. return of disease 5 mos. later.
118	Bigelow	Feb. 26, 1864	Shoemaker	M. 24	" " "	12 y.	Flap	2-3	"	31 d.	Resection of end of femur 1 year later.
119	Clark	April 7, 1864	Cigar-maker	F. 34	Chronic disease of knee-joint	4 mo.	Flap	2-3	Death	38 d.	Tubercles found in l. lung at autopsy.
120	"	April 16, 1864	Washerwoman	M. 40	Necrosis of tibia	3 y.	Circular	2-3	Recovery	23 d.	Sec. haemorrhage. Erysipelas. D. fr. exhaustion.
121	Hodges	July 26, 1864	Farmer	M. 70	Tumor of leg	4 y.	Flap	2-3	Death	22 d.	Sec. haemorrhage.
122	"	Aug. 5, 1864	Clerk	M. 34	Chronic disease of knee-joint	28 y.	Flap	2-3	"	82 d.	Sec. haemorrhage.
123	Bigelow	Nov. 30, 1864	Laborer	M. 25	Necrosis of tibia	10 y.	Flap	2-3	Recovery	62 d.	Encephaloid. D. fr. return of disease 5 mos. later.
124	Gay	Dec. 1, 1864	Merchant	M. 54	Chronic disease of knee-joint	2 mo.	Flap	2-3	Death	6 d.	[in lungs.]
125	Bigelow	Dec. 7, 1864	Farmer	M. 37	Tumor of thigh	1 y.	Flap	2-3	Recovery	80 d.	Encephaloid. At autopsy enceph. growth found
126	Gay	Dec. 5, 1865	Clerk	M. 26	Chronic disease of knee-joint	5 y.	Flap	2-3	Death	19 d.	Resection of end of femur.
127	"	Jan. 5, 1865	Housewife	F. 61	Tumor of leg	15 mo.	Flap	2-3	Recovery	173 d.	Encephaloid. At autopsy enceph. growth found
128	Bigelow	Jan. 19, 1865	Minor	M. 5	Chronic disease of knee-joint	3 y.	Flap	2-3	Death	22 d.	Resection of end of femur.
129	Clark	May 13, 1865	Seaman	M. 20	Tumor of thigh	6 y.	Flap	2-3	Recovery	24 d.	Encephaloid. As shown at autopsy.
130	"	Sept. 21, 1865	Painter	M. 36	Deformity of leg fr. fracture	2 y.	Flap	2-3	Death	42 d.	Secondary haemorrhage.
131	Gay	Nov. 8, 1865	Farmer	M. 21	Ankylosis of knee	4 y.	Flap	2-3	Recovery	91 d.	Resection of end of femur.
132	Hodges	June 22, 1866	Musician	M. 40	Cancer of sciatic nerve	1 y.	Flap	2-3	Death	47 d.	D. fr. cancerous growth in lungs 8 mos. later.
133	"	June 17, 1866	Shoemaker	M. 27	Chronic disease of knee-joint	2 y.	Flap	2-3	Recovery	37 d.	D. fr. pyæmia, as shown at autopsy.
134	J. M. Warren	Jan. 27, 1866	Carpenter	M. 55	Tumor of leg	5 y.	Flap	2-3	Death	45 d.	Pneumonia. D. fr. pyæmia, as shown at autopsy.
135	"	May 5, 1866	Cobbler	M. 20	Chronic disease of knee-joint	3 y.	Flap	2-3	Recovery	28 d.	Erysipelas. Phthisis. Erysipelas.
136	"	May 29, 1866	Apothecary	M. 20	Necrosis of femur	6 mo.	Flap	2-3	Death	56 d.	Secondary haemorrhage.
137	"	June 9, 1866	Farmer	M. 55	Chronic disease of knee-joint	15 mo.	Teale's Circular	2-3	Recovery	1 d.	Resection of end of femur. D. fr. pyæmia proved
138	"	June 27, 1866	Tanner	M. 26	" " "	3 y.	Teale's Flap	2-3	Death	1 d.	D. fr. collapse.
139	Hodges	June 22, 1866	Bootsmaker	M. 27	Fungus of stump	19 y.	Flap	2-3	Recovery	48 d.	Union almost throughout by first intention.
140	"	Oct. 2, 1866	Carpenter	M. 27	Necrosis of tibia	12 y.	Flap	2-3	Death	22 d.	Recent tubercles found in both lungs at autopsy.
141	"	Dec. 3, 1866	Laborer	M. 32	Tumor of thigh	9 mo.	Flap	2-3	Recovery	41 d.	Recent tubercles found in both lungs at autopsy.
142	Bigelow	Jan. 3, 1867	Dyer	M. 19	Necrosis of femur	11 y.	Circular	2-3	Death	32 d.	Recent tubercles found in both lungs at autopsy.
143	"	Jan. 4, 1867	Minor	M. 52	Chronic disease of knee-joint	20 mo.	Circular	2-3	Death	32 d.	Recent tubercles found in both lungs at autopsy.
144	J. M. Warren	Jan. 11, 1867	Paper-carrier	M. 52	" " "	" " "	" " "	" " "	Death	"	"

AMPUTATIONS AT THE

Table 12 (concluded.)

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura- tion.	Amputation. Method. Place.	Result.	Length of Time.	Details.
146	Clark	Mar. 20, 1867	Housewife	F. 28	Chronic disease of knee-joint	8 y.	Flap	Recovery	20 d.	
147	Hodges	June 15, 1867	Soldier	M. 23	Necrosis of stump	1 y.	Circular	"	33 d.	Pr. amp. for comp. fract. of thigh 11 mos. ago.
148	Bigelow	Oct. 9, 1867	Engraver	M. 22	Chronic disease of knee-joint	18 y.	Flap	"	122 d.	Extensive sloughing of flaps.
149	"	Feb. 17, 1868	Merchant	M. 38	Tumor of leg	8 y.	Flap	"	69 d.	Erysipelas.
150	"	Feb. 22, 1868	Minor	M. 18	"	6 mo.	"	"	39 d.	" Cancer."
151	Hodges	Mar. 18, 1868	"	M. 13	"	7 mo.	"	"	33 d.	Sarcoma.
152	"	May 1, 1868	Mechanic	M. 18	" " thigh	2½ mo.	"	"	30 d.	
153	Gay	July 29, 1868	Harnessmaker	M. 36	Chronic disease of knee-joint	4 mo.	"	"	47 d.	
154	Hodges	Sept. 30, 1868	Bookseller	M. 28	" "	3 y.	"	"	28 d.	
155	Gay	Oct. 9, 1868	Bookseller	M. 37	" "	1 y.	Teale's	"	30 d.	
156	Bigelow	Oct. 3, 1869	Laborer	M. 32	" "	"	Circular	Removed	102 d.	
157	Clark	April 3, 1869	Spinster	M. 44	Tumor of leg	5 mo.	Flap	Recovery	35 d.	
158	Clark	May 1, 1869	Teamster	F. 24	Chronic disease of knee-joint	9 mo.	Flap	"	49 d.	
159	Coolidge	May 18, 1869	Laborer	M. 32	Necrosis of tibia	3 mo.	Circular	"	23 d.	
160	Clark	June 18, 1869	Laborer	M. 24	Chronic disease of knee-joint	8 mo.	Flap	"	52 d.	Epilepsy.
161	Gay	Sept. 9, 1869	Laborer	M. 35	Necrosis of femur	11 mo.	"	"	41 d.	Secondary hemorrhage.
162	"	Oct. 19, 1869	Minor	M. 19	Chronic disease of knee-joint	5 y.	"	"	27 d.	[Jaundice.]
163	"	Oct. 29, 1869	Seaman	M. 43	Tumor of thigh	3 w.	"	"	88 d.	Curvature of spine. Tumor in l. lumbar region.
164	Bigelow	Nov. 6, 1869	Laborer	M. 26	Chronic disease of knee-joint	6 y.	"	"	156 d.	Secondary hemorrhages. [Haem. D. fr. exch.
165	Gay	July 14, 1870	Domestic	F. 20	Tumor of leg	7 mo.	"	"	17 d.	Exc. of tumor attempt 3 wk's before amp. Many
166	Cabot	Feb. 21, 1871	Minor	M. 15	Chronic disease of knee-joint	2 y.	"	Death	18 d.	D. from pyæmia.
Recovered, 128					Deaths from Exhaustion, 21			The causes of amputation were:		
Died, 34					" Pyæmia, 10			Chronic disease of knee-joint in 82 cases,		2 cases.
					" Collapse, 2			Necrosis,		
								Tumors		
								Deformities		
								Ulcers		
								Ankyloses		
								Caries		

Recovered, 128
Died, 34
Total, 162
Relieved, 2
Removed, 2
Ratio of mortality, 20.98.

Table 13.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Dura- tion.	Method of Amputation.	Result.	Length of Time.	Details.
1	Cabot	June 4, 1859	Shoecutter	M. 30	Necrosis r. tibia	19 y.	Post. flap	Well	46 d.	Patella and cartil. removed. Reentered for diar.
2	Bigelow	Feb. 8, 1868	Merchant	M. 52	Malignant tumor of leg	8 y.	" "	"	69 d.	Rhoea, and died Oct. 2, 1859.
3	Cabot	Nov. 28, 1868	Minor	M. 12	Chronic disease of knee	11 mo.	Long ant. flap	"	31 d.	Patel. & cartil. removed. Sinuses in thigh form'd
4	Bigelow	Jan. 8, 1870	Operative	F. 41	Pulpy-degen. of knee-joint	3 y.	Ant. & post. " "	"	42 d.	Short ant. and long post. flaps. Patella removed.
5	"	Jan. 29, 1870	Operative	F. 23	"	7 y.	" "	Dead	Ant. fl. 3 in. below pa. & l. p. fl. Pya. gan. & erys.	
6	Hodges	May 23, 1870	Minor	F. 10	Conical and ulcerated stump	8 y.	" "	Well	25 d.	Slight attack of erysipelas.
7	Clark	June 18, 1870	Wife	F. 62	Malignant disease of tibia	14 mo.	" "	Dead	Flaps sloughed.	
8	Bigelow	Nov. 12, 1870	Farmer	M. 34	Necro. fibro. & ch. dis. of knee	13 y.	" "	Well	10 d.	Flap sloughed.
9	Cabot	Nov. 19, 1870	Carpenter	F. 27	Ankylo. knee & sinuses in leg	1½ y.	Long. ant. flap	Dead	13 d.	Pyæmia.
10	Bigelow	Dec. 24, 1870	Milliner	F. 65	Caries of knee-joint	2½ y.	Ant. & post. flap	Well	61 d.	Long ant. and long post. flaps.
11	Cal. of	Jan. 27, 1871	Nurse	F. 65	Abscess of knee-joint	1 y.	" "	Dead	57 d.	Ant. flap sloughed.

Recovered, 7; Died, 4—Total 11.

Ratio of mortality, 36.36 per cent.

Deaths from Exhaustion, 3; from Pyæmia, 2.

MASSACHUSETTS GENERAL HOSPITAL.

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AMPUTATIONS AT KNEE-JOINT.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Injury.	Dura- tion. Time.	Method of Amputation.	Result.	Length of Time.	Details.
1	Hodges	Oct. 17, 1867	Mechanic	M. 38	Comp. com. fract. leg	1 h.	Ant.&post. flap	Well	72 d.	Amp. of left foot also (procédé de M. Roux.)
2	"	June 3, 1868	Bookkeeper	M. 18	" " "	1 h.	" "	"	81 d.	Post. flap sloughed.
3	"	Aug. 6, 1869	Merchant	M. 82	" " "	4½ h.	" "	Dead	2 d.	Bad bled excessively.
4	Clark	June 4, 1870	Coachman	M. 35	" " "	2 h.	" "	1 d.	C. com. fract. of pelvis also. Horse R. Road.	
5	Hodges	June 25, 1870	Auditor	M. 49	" " "	2 h.	" "	"	23 d.	L. ant.& sh. post. fl. acute cellulitis, p. fl. slight.
	Recovered, 2; Died, 3;—Total, 5.									R. R. accident, 1, which was fatal.

AMPUTATIONS OF LEG.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura- tion. Time.	Method of Amputation.	Result.	Length of Time.	Details.
1	Hayward	April 25, 1832	Truckman	M. 27	Laceration of leg	18 h.	Circula.	Recovery	82 d.	Alcoholic habit. Secondary hemorrhages.
2	"	Mar. 5, 1838	Laborer	M. 20	Comp. com. fract. of leg	3 h.	"	Death	9 d.	Inj. to back. Jaund. Convul. Cause of d. unk.
3	Townsend	Jan. 16, 1839	Teamster	M. 26	" " "	22 h.	"	Recovery	119 d.	Delirium tremens.
4	"	Aug. 14, 1841	Apple-woman	F. 50	" " "	3 h.	Flap	"	56 d.	Became insane and was sent to the asylum.
5	"	Nov. 16, 1846	Tanner	M. 35	" " "	1½ h.	Circular	"	138 d.	R. R. accident. Delirium tremens.
6	"	Feb. 20, 1847	Brakeman	M. 27	" " "	6 h.	"	"	161 d.	Secondary hemorrhage. Pleuritis.
7	J. M. Warren	Mar. 24, 1847	Laborer	M. 39	" " "	3 h.	"	Death	6 d.	Fr. of skull. D. fr. comp. as sh. at autopsy.
8	Townsend	Sept. 2, 1847	"	M. 40	" " "	4 h.	"	"	18 d.	do. cont. of abdomen. D. fr. periton. and perf. of small intest. shown at aut.
9	"	Sept. 27, 1847	"	M. 26	" " "	3 h.	"	Recovery	95 d.	do. do.
10	J. M. Warren	Mar. 13, 1848	Minor	F. 21	" " "	1 h.	"	"	40 d.	Resection of end of bones. Erysipelas.
11	"	April 27, 1848	Domestic	F. 21	" " "	2 h.	Flap	"	115 d.	Fracture also injured.
12	"	May 8, 1849	Seaman	M. 27	" " "	leg	"	Death	11 d.	Erysipelas of scalp and stumps.
13	"	Oct. 6, 1849	Laborer	M. 35	" " "	leg	"	Recovery	235 d.	do.
14	Townsend	June 1, 1850	"	M. 25	" " "	legs	"	Death	18 d.	Double amputation. Intoxication.
15	"	Sept. 14, 1850	"	M. 50	" " "	2 h.	Circular	Recovery	74 d.	do. Sloughing of flaps.
16	J. M. Warren	April 1, 1851	"	M. 57	" " "	leg	"	"	75 d.	do.
17	Townsend	Aug. 1, 1851	Domestic	F. 18	" " "	ankle	Liston's	"	109 d.	Right thigh also amputated.
18	"	Aug. 22, 1851	Minor	M. 18	" " "	17 h.	Circular	"	91 d.	Delirium tremens.
19	"	Oct. 11, 1851	Teamster	M. 30	" " "	leg	"	"	95 d.	R. R. accident. Fract. of skull. D. fr. comp.
20	Parkman	Oct. 18, 1852	Laborer	M. 33	" " "	ankle	"	"	26 d.	" " " Erysipelas.
21	Clark	Nov. 17, 1852	Carpenter	M. 35	" " "	3 h.	Flap	Death	7 d.	Death from collapse.
22	Chobot	Jan. 21, 1854	Seaman	M. 19	" " "	ankle	"	Recovery	31 d.	R. R. accident. Fract. of skull and forearm. Died
23	J. M. Warren	Mar. 9, 1854	Stonecutter	M. 32	" " "	2 h.	Flap	"	42 d.	R. R. accident. Fracture of nose.
24	Clark	June 15, 1854	Laborer	M. 18	" " "	leg	"	"	67 d.	Comp. fract. of left leg. D. fr. pyæmia.
25	"	June 19, 1854	"	M. 24	" " "	2 h.	"	"	58 d.	R. R. accident. Secondary hemorrhage.
26	"	June 21, 1854	"	M. 21	" " "	3 h.	"	Death	3 d.	[Photons and spasm.
27	Parkman	Aug. 7, 1854	Trader	M. 57	" " "	foot	Circular	"	7 d.	Listfranc's amp. of l. foot. Ops.
28	"	Sept. 12, 1854	Engineer	M. 22	" " "	ankle	"	Recovery	31 d.	Delirium tremens. Not fully cataractized.
29	Bigelow	Dec. 5, 1854	Laborer	M. 28	" " "	leg	"	Death	125 d.	R. R. accident. Amp. of l. foot. Sloughing of fl.
30	Carrot	Dec. 16, 1854	Seaman	M. 33	" " "	2 h.	"	"	66 d.	Obstinate vomiting.
31	"	Feb. 14, 1855	Minor	M. 16	" " "	3 h.	"	Death	11 d.	Phlebitis.
32	Bigelow	Feb. 24, 1855	Book-pedlar	F. 26	" " "	ankle	"	Recovery	49 d.	Intoxication & great loss of blood. D. fr. collapse.
33	Cabot	Dec. 26, 1855	Laborer	M. 19	" " "	2 h.	"	"	61 d.	R. R. accident. Amp. of thumb. Sloughing of fl.
34	"	May 28, 1856	Domestic	F. 20	" " "	leg	"	Death	7 d.	Phlebitis.
35	Clark	May 18, 1856	Mariner	M. 55	" " "	20 h.	"	"	10 d.	Intoxication & great loss of blood. D. fr. collapse.
36	Townsend	Aug. 12, 1856	Mechanic	M. 19	" " "	12 h.	"	"	25 h.	"
37	J. M. Warren	April 18, 1857	Clerk							

AMPUTATIONS AT THE

Table 15 (continued.)

AMPUTATIONS OF LEG.—TRAUMATIC—PRIMARY.

No.	Operator.	D.t.e.	Occupation	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
						Method.	Place.		
38	Clark	Nov. 4, 1857	Merchant	M. 50 Comp. com. fract. of ankle	15 h.	Flap	$\frac{2}{3}$ — $\frac{3}{4}$	Recovery 132 d.	Del. tremens. Extensive sloughing. Erysipelas.
39	Cabot	June 10, 1858	Minor	F. 7 "	" " " " "	Foot 2 h.	"	43 d.	R. R. accident.
40	Townsend	July 5, 1858	Shoemaker	M. 20 "	" " " " "	Leg 16 h.	"	71 d.	R. R. accident.
41	Gay	July 12, 1858	Minor	M. 13 "	" " " " "	Foot 2 h.	"	120 d.	R. R. accident.
42	Townsend	Oct. 22, 1858	Mason	M. 32 "	" " " " "	Circular Flap	"	116 d.	Tetanus.
43	J. M. Warren	June 17, 1859	Washerwoman	F. 46 "	" " " " "	Circular Flap	"	13 d.	R. R. accident. Hysteria.
44	Cabot	June 23, 1859	Minor	F. 19 "	" " " " "	Ankle 1 h.	"	"	" " " " " Scalp wound. D. from lesions of brain found at autopsy.
45	Townsend	July 4, 1859	Laborer	M. 35 "	" " " " "	Leg 2 h.	"	"	" " " " " Death 15 h.
46	"	July 16, 1859	Seaman	M. 35 "	" " " " "	Ankle 2 h.	"	"	" " " " " Recovery 76 d.
47	Gay	July 13, 1860	Laborer	M. 68 "	" " " " "	Leg 2 h.	"	"	" " " " " Death 56 d.
48	"	Aug. 27, 1861	Minor	F. 2 "	" " " " "	Foot 2 h.	"	"	" " " " " Death 6 d.
49	"	Oct. 4, 1861	Laborer	M. 30 "	" " " " "	6 h.	"	"	" " " " " Died from collapse.
50	Cabot	Dec. 25, 1861	Blacksmith	M. 26 "	" " " " "	2 h.	"	"	" " " " " Del. tremens. Resect'n of end of bones.
51	Gay	Aug. 28, 1862	Minor	M. 14 "	" " " " "	Ankle 3 h.	"	"	" " " " " Recovery 85 d.
52	"	Oct. 27, 1862	Ropemaker	M. 22 "	" " " " "	5 h.	"	"	" " " " " R. R. accident.
53	J. M. Warren	May 12, 1863	Minor	M. 9 "	" " " " "	Leg 2 h.	"	"	" " " " " 58 d.
54	Clark	July 13, 1863	Laborer	M. 55 "	" " " " "	Foot 2 h.	"	"	" " " " " R. R. accident.
55	Hodges	July 15, 1863	Engineer	M. 22 "	" " " " "	2 h.	"	"	" " " " " Secondary hemorrhages.
56	"	Aug. 18, 1863	Laborer	M. 26 "	" " " " "	Circular Flap	"	"	" " " " " R. R. accident.
57	"	Sept. 12, 1863	Carpenter	M. 58 "	" " " " "	3 h.	"	"	" " " " " Carried home by friends.
58	"	Sept. 15, 1863	Laborer	M. 32 "	" " " " "	of both legs 3 h.	"	"	" " " " " Amp. of rt. thigh. Resec. of end of fem. 3 m. later.
59	"	Sept. 29, 1863	Soldier	M. 24 "	" " " " "	3 h.	"	"	" " " " " Double amputation. D. from shock.
60	"	Oct. 29, 1863	Laborer	M. 47 "	" " " " "	leg 3 h.	"	"	" " " " " Diarrhoea.
61	Cabot	Feb. 11, 1864	"	M. 35 "	" " " " "	2 h.	"	"	" " " " " Death 11 d.
62	Bigelow	Feb. 20, 1864	Soldier	M. 30 "	" " " " "	3 h.	"	"	" " " " " R. R. accident. Delirium.
63	Clark	April 2, 1864	Minor	M. 4 "	" " " " "	both legs 3 h.	"	"	" " " " " Died from pyæmia.
64	Hodges	July 18, 1864	Soldier	M. 22 "	" " " " "	ankle 16 h.	"	"	" " " " " Double amput. Tubercles and pyæmia shown at aut.
65	Cabot	Aug. 14, 1864	Brakeman	M. 35 "	" " " " "	leg 9 h.	"	"	" " " " " R. R. accident. Amp. of arm in $\frac{1}{2}$.
66	Bigelow	Dec. 8, 1864	Brakeman	M. 20 "	" " " " "	2 h.	"	"	" " " " " Laceration of neck, thigh, &c., explosion of shell.
67	Clark	April 18, 1865	Laborer	M. 31 "	" " " " "	2 h.	"	"	" " " " " Delirium tremens. Sloughing of flaps.
68	"	April 20, 1865	"	M. 56 "	" " " " "	18 h.	"	"	" " " " " Recovery 48 d.
69	"	June 28, 1865	"	M. 35 "	" " " " "	foot 24 h.	"	"	" " " " " Death 6 h.
70	Gay	Aug. 4, 1865	"	M. 32 "	" " " " "	Circular Flap	"	"	" " " " " Fracture of ulna. Died from shock.
71	Hodges	Sept. 13, 1866	Seaman	M. 19 "	" " " " "	ankle 2 h.	"	"	" " " " " R. R. accident.
72	Gay	Nov. 2, 1866	Driver	M. 24 "	" " " " "	leg 2 h.	"	"	" " " " " Intoxication. Sloughing of flaps.
73	"	Nov. 3, 1866	Boomaker	M. 24 "	" " " " "	foot 2 h.	"	"	" " " " " Recovery 52 d.
74	Bigelow	Nov. 22, 1866	Brakeman	M. 27 "	" " " " "	both legs 5 h.	"	"	" " " " " 86 d.
75	Gay	Nov. 28, 1866	Minor	M. 12 "	" " " " "	leg 2 h.	"	"	" " " " " 94 d.
76	Clark	Sept. 13, 1867	Laborer	M. 37 "	" " " " "	ankle 2 h.	"	"	" " " " " 61 d.
77	Hodges	Oct. 11, 1867	Mechanic	M. 38 "	" " " " "	both legs 5 h.	"	"	" " " " " 69 d.
78	Bigelow	Jan. 15, 1868	Minor	F. 6 "	" " " " "	Roux's Flap	"	"	" " " " " 72 d.
79	Cabot	Jan. 20, 1868	Laborer	M. 28 "	" " " " "	ankle 4 h.	"	"	" " " " " 99 d.
80	Hodges	Mar. 4, 1868	Teamster	M. 60 "	" " " " "	both legs 2 h.	"	"	" " " " " 43 d.
81	Coolidge	May 26, 1868	Laborer	M. 42 "	" " " " "	ankle 2 h.	"	"	" " " " " 74 d.
82	Hodges	June 6, 1868	Shoemaker	M. 43 "	" " " " "	Circular Flap	"	"	" " " " " 52 d.
83	Clark	June 9, 1868	Carpenter	M. 19 "	" " " " "	1 h.	"	"	" " " " " Boiler explosion.
84	Hodges	June 26, 1868	Shoemaker	M. 28 "	" " " " "	2 h.	"	"	" " " " " R. R. accident.
85	Coolidge	Aug. 6, 1868	Minor	M. 9 "	" " " " "	2 h.	"	"	" " " " " Death 28 d.
86	Gay	Nov. 6, 1868	Trader	M. 33 "	" " " " "	"	"	"	" " " " " Recovery 42 d.

Table I5 (concluded.)

No.	Operator.	Date.	Occupation.	Sex	Age.	Nature of Injury.	Dura-	Amputation.	Length
							tion.	Method, Place.	of
									Time.
87	Bigelow	Jan. 6, 1869	Laborer	M.	18	Comp. com. fract. of ankle	2 h.	Circular	187 d.
88	Coolidge	June 19, 1869	Minor	F.	2	" " " of both legs	2 h.	Flap	Resection of end of bones. Sec. hemorrhages.
89	Hodges	Sept. 14, 1869	Teamster	M.	21	" " " leg	1 h.	Circular	R. R. accident. Double amputation.
90	"	Sept. 23, 1869	Flag-man	M.	21	" " " "	2 h.	"	R. R. accident. Contusion and gangrene of L. leg. Del. trem.
91	Gay	Oct. 28, 1869	Laborer	M.	18	" " " "	2 h.	"	R. R. accident. 4 toes amputated. Erysipelas.
92	Cabot	Dec. 14, 1869	Painter	M.	28	" " " "	2 h.	"	" Extensive scalp wound. Convulsions. Died fr. collapse.
93	Hodges	Mar. 8, 1870	Laborer	M.	31	" " " "	2 h.	"	Erysipelas.
94	Gay	July 30, 1870	Minor	M.	19	" " " foot	3 h.	Flap	Secondary hemorrhage.
95	Hodges	Aug. 29, 1870	Laborer	M.	9	" " " leg	2 h.	Circular	Laceration of other foot.
96	"	Oct. 29, 1870	Shoemaker	M.	19	" " " foot	3 h.	Flap	152 d. Death from Cerebral Afection, 1
97	"	Nov. 3, 1870							" Unknown Cause, 1
Recovered, 63 Died, 33									" Collapse. 4
									" Deaths from Exhaustion, 17
									" Hos. gangr. Resec. of end of bones. 14
									" Erysipelas, 65 d. R. R. accidents, 57, of which 18 were fatal.

Table 16.

AMPUTATIONS OF LEG.—TRAUMATIC—SECONDARY.									
No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Amputation.	Duration.	Result.	Details.
1	J. C. Warren	Feb., 4, 1822	Laborer	M. 60	Comp. fracture of leg	12 d.	Death	6 d.	Delirium tremens. Gangrene.
2	"	Nov. 10, 1827	"	M. 30	"	11 d.	Recovery	6 d.	"
3	G. Otis	June 3, 1829	Shoemaker	M. 27	"	19 d.	Death	6 d.	Alco. habit. Great loss of blood. D. fr. col.
4	J. C. Warren	Feb. 26, 1830	Laborer	M. 49	"	28 d.	Recovery	10 h.	" " "
5	Hayward	June 9, 1831	Carpenter	M. 24	Comp. com. fracture of foot	10 d.	Death	71 d.	Delirium tremens.
6	J. C. Warren	Feb. 8, 1834	Laborer	M. 40	Comp. dislocation of ankle	24 mo.	Recovery	82 d.	R. R. accident. Gangrene.
7	Townsend	July 17, 1845	Painter	M. 21	com. fract. of leg	15 d.	Recovery	23 d.	Much sloughing before operation.
8	Bigelow	July 25, 1845	"	M. 25	"	6 d.	Death	31 d.	R. R. accident. Resection of end of bones.
9	Bigelow	Sept. 21, 1847	Laborer	M. 10	"	3 d.	Very nervous temperament.	119 d.	Tetanus.
10	Hayward	Nov. 8, 1848	Minor	M. 24	"	10 d.	Recovery	7 d.	"
11	Parkman	Dec. 7, 1848	Laborer	M. 30	"	Flap	Secondary haemorrhage.	83 d.	R. R. accident.
12	J. M. Warren	Feb. 11, 1849	"	M. 25	"	34 d.	Fell upon leg while wrestling.	54 d.	Resection of end of bones.
13	Parkman	Sept. 11, 1849	"	M. 25	"	leg	Secondary haemorrhage.	134 d.	"
14	"	Jan. 16, 1850	"	M. 22	"	18 d.	Erysipelas after op.	140 d.	"
15	J. M. Warren	April 30, 1851	Seaman	M. 31	"	12 d.	Delirium tremens. Neuralgia.	62 d.	"
16	Parkman	July 28, 1852	Teamster	M. 29	"	28 d.	Del. trem. D. fr. pyæmia, as shown at aut.	15 d.	"
17	"	Sept. 29, 1852	Farmer	M. 33	com.	11 d.	Death	7 d.	D. fr. accident. Sec. haemors. D. fr. pyæmia.
18	Bigelow	Jan. 7, 1854	Laborer	M. 40	"	20 d.	Recovery	14 d.	Delirium tremens. D. fr. pyæmia.
19	Townsend	July 21, 1854	Mason	M. 55	"	10 d.	"	18 d.	"
20	"	Sept. 19, 1854	Carpenter	M. 22	"	22 d.	Recovery	198 d.	Erysipelas. Not fully healed. Imbecility.
21	Cabot	Jan. 13, 1855	Mechanic	M. 23	dislocation of ankle	40 d.	"	47 d.	Intoxication.
22	"	Feb. 15, 1855	Laborer	M. 38	com. fract. of leg	19 d.	"	86 d.	R. R. accident. Refused to submit to prim. op.
23	J. M. Warren	April 30, 1857	"	M. 60	"	12 d.	Flap	26 d.	Death
24	Townsend	Aug. 18, 1857	Minor	M. 14	"	2 d.	Circular	93 d.	Sloughing of flaps.
25	"	Aug. 20, 1857	Laborer	M. 23	"	8 d.	Flap	142 d.	Scalp wounds. Secondary hem. Gangrene.
26	Bigelow	Dec. 22, 1857	Farmer	M. 60	"	21 d.	Flap	32 d.	"

AMPUTATIONS AT THE HOSPITAL

Table 16 (concluded.)

AMPUTATIONS OF LEG.—TRAUMATIC—SECONDARY.									
No.	Operator.	Date.	Occupation.	Nature of Injury.	Dura-	Amputa-	Length	Details.	
				Sex and Age.	tion.	tion.	of Time.		
27	Bigelow	Jan. 23, 1858	Housewife	F. 35 Comp. com. fract. of ankle	17 d.	Circular	3 in.	Delivered.	D. fr. pyæmia as shown at autopsy.
28	Cabot	Dec. 4, 1858	Tailor	M. 49 " "	17 w.	"	17 d.		Erysipelas. Resection of end of bones.
29	"	Jan. 24, 1860	Teamster	M. 65 " "	18 d.	Flap	187 d.		D. from pyæmia.
30	"	Feb. 18, 1860	Charwoman	F. 60 " "	16 d.	Circular	Death 10 d.		Del. trem. Erysipelas. Resection of end of bones.
31	J. M. Warren	June 23, 1860	Laborer	M. 58 Comp. com. fract. of ankle	38 d.	Flap	Recovery 235 d.		Mucous and bloody stools. D. fr. pyæmia.
32	Townsend	Aug. 6, 1860	Laborer	M. 22 Comp. com. fract. of leg	15 d.	Circular	Death 6 d.		
33	Clark	May 9, 1861	Minor	F. 43 Fracture of ankle	Flap	16 d.	Recovery 29 d.		
34	Townsend	Aug. 12, 1861	"	M. 11 Comp. com. fract. of leg	Circular	16 d.	"		
35	"	Aug. 31, 1861	"	M. 4 Laceration of foot	"	3 d.	"		
36	Cabot	Nov. 1, 1861	Seaman	M. 40 Comp. com. fract. of leg	"	"	Death 4 d.		
37	"	Dec. 24, 1862	Minor	M. 5 Communited fract. of ankle	13 d.	"	Recovery 26 d.		R. R. accident. 1 year later.
38	Clark	Aug. 15, 1863	Fireman	M. 23 Communited fract. of foot	28 d.	"	"		" Erysip. Resec. of end of bones.
39	Bigelow	Nov. 21, 1863	Med. student	M. 24 Comp. disloc. at ankle	15 mo.	"			
40	Cabot	Dec. 10, 1863	Shoemaker	M. 44 Comp. com. fracture of leg	2 d.	Flap	3 in.		R. R. accident. D. from collapse.
41	"	April 21, 1864	Laborer	M. 55 Comp. disloc. at ankle	29 d.	Circular	3 in.		D. from pyæmia.
42	"	Dec. 28, 1864	Cabinetmaker	M. 53 Comp. fracture of leg	17 d.	Flap	60 d.		Diarrœa.
43	Hodges	Aug. 19, 1865	Cabinetmaker	M. 22 Comp. com. fract. of foot	55 d.	"	26 d.		R. R. ac. Pirigoff's amp. performed primarily.
44	Bigelow	Nov. 11, 1865	Fireman	M. 21 Comp. com. fract. of foot	14 d.	"	13 d.		" Del. trem. D. fr. pyæm. shown at aut.
45	"	Dec. 21, 1865	Laborer	M. 35 Comp. com. fract. of ankle	21 d.	"	Recovery 64 d.		Phlebitis.
46	Cabot	Dec. 26, 1865	Taylor	M. 21 Comp. com. fract. of foot	11 d.	Flap	50 d.		R. R. accident.
47	Cabot	Nov. 11, 1867	Seaman	M. 18 Communited fract. of ankle	19 mo.	Circular	Recovery 93 d.		Resection of ends of bones 1 month later.
48	Hodges	May 12, 1868	Teamster	M. 27 Comp. com. fract. of leg	45 d.	Flap	45 d.		Delirious tremens.
49	Bigelow	Feb. 6, 1869	Laborer	M. 56 Comp. fract. of leg	21 d.	"	Death 12 d.		
50	Cabot	Feb. 19, 1869	Minor	M. 12 Comp. com. fracture of foot	6 mo.	Flap	Recovery 33 d.		R. R. accident.
51	Gay	Aug. 18, 1870	Clerk	M. 19 Comp. com. fracture of foot	9 d.	"	67 d.		Resection of end of bones.
52	Cabot	Dec. 23, 1870	Laborer	M. 27 Laceration of leg	1 mo. Circular	"	Death 41 d.		Pyæmia suspected before amp. and found at aut.
Recovered, 34 Died, 18—Total, 52 Ratio of mortality, 34.61 per cent.									
Deaths from Exhaustion, 8 Pyæmia, 8 Collapse, 2									
AMPUTATIONS OF LEG.—PATHOLOGICAL.									
No.	Operator.	Date.	Operator.	Sex and Age.	Disease.	Amputa-	Length	Details.	
						tion.	of Time.		
1	J. C. Warren	Dec. 19, 1823	Sailor	M. 21 Frost-bite of feet	13 d.	Circular	2 in.	Double amputation.	One flap.
2	"	May 22, 1825	Merchant	M. 21 Chronic dis. of ankle-joint	12 Y.	Flap	71 d.		
3	"	Dec. 17, 1825	Hackman	M. 41 Necrosis of tibia	2 Y.	"	30 d.	Nearly healed. Died one month later.	
4	"	April 4, 1828	Grocer	M. 21 " "	15 Y.	"	65 d.	Chills and fever. Growth appearing in groin.	
5	"	Mar. 5, 1829	Housewife	F. 50 Tumor of leg	10 mo.	Circular	Recovery 61 d.		
6	G. Otis	Feb. 11, 1830	Laborer	M. 44 Ulcers of leg and foot	20 Y.	"	71 d.		
7	J. C. Warren	Dec. 18, 1830	Seaman	M. 43 " "	12 Y.	"	33 d.		
8	"	Jan. 19, 1833	Baker	M. 19 Deformity of foot	20 Y.	"	62 d.		
9	Hayward	Mar. 2, 1833	Silversmith	M. 19 Ulcer of stump	Cong.	"	32 d.		
10	"	Nov. 12, 1834	Shoemaker	M. 37 Farmer	3 Y.	"	33 d.		
11	J. C. Warren	Feb. 6, 1836	Farmer	M. 43 " "	14 Y.	"	Death 20 d.		
12	Hayward	Feb. 13, 1836	Chaisemaker	M. 38 " " leg	4 Y.	"	Recovery 46 d.		
13	"	Dec. 10, 1836	Woolspinner	M. 28 Carries of tarsus	"	"	Secondary haemorrhage. 51 d.		
14	"	Jan. 21, 1837	Wheelwright	M. 43 Frost-bite of feet	24 d.	"	Intoxication. " "		

Table 17.

AMPUTATIONS OF LEG.—PATHOLOGICAL.									
No.	Operator.	Date.	Operator.	Sex and Age.	Disease.	Amputa-	Length	Details.	
						tion.	of Time.		
1	J. C. Warren	Dec. 19, 1823	Sailor	M. 21 Frost-bite of feet	13 d.	Circular	2 in.	Double amputation.	One flap.
2	"	May 22, 1825	Merchant	M. 21 Chronic dis. of ankle-joint	12 Y.	Flap	"		
3	"	Dec. 17, 1825	Hackman	M. 41 Necrosis of tibia	2 Y.	"	"		
4	"	April 4, 1828	Grocer	M. 21 " "	15 Y.	"	"		
5	"	Mar. 5, 1829	Housewife	F. 50 Tumor of leg	10 mo.	Circular	Recovery 61 d.		
6	G. Otis	Feb. 11, 1830	Laborer	M. 44 Ulcers of leg and foot	20 Y.	"	71 d.		
7	J. C. Warren	Dec. 18, 1830	Seaman	M. 43 " "	12 Y.	"	30 d.		
8	"	Jan. 19, 1833	Baker	M. 19 Deformity of foot	20 Y.	"	62 d.		
9	Hayward	Mar. 2, 1833	Silversmith	M. 19 Ulcer of stump	Cong.	"	32 d.		
10	"	Nov. 12, 1834	Shoemaker	M. 37 Farmer	3 Y.	"	33 d.		
11	J. C. Warren	Feb. 6, 1836	Farmer	M. 43 " "	14 Y.	"	Death 20 d.		
12	Hayward	Feb. 13, 1836	Chaisemaker	M. 38 " " leg	4 Y.	"	Recovery 46 d.		
13	"	Dec. 10, 1836	Woolspinner	M. 28 Carries of tarsus	"	"	Secondary haemorrhage. 51 d.		
14	"	Jan. 21, 1837	Wheelwright	M. 43 Frost-bite of feet	24 d.	"	Intoxication. " "		

MASSACHUSETTS GENERAL HOSPITAL.

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Table 17 (continued.)

AMPUTATIONS OF LEG.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Dura-tion.	Amputation.	Length of time.	Details.
							Method, Place.		
							2d Y.	Circular	
15	Hayward	Nov. 23, 1857	Shoebinder	F. 25	Deformity of ankle	2d Y.	"	43 d.	Deformity followed on head. Hysteria.
16	"	April 17, 1858	Overseer	M. 38	Ulcer of leg	18 Y.	"	88 d.	Opium habit. Malaria fever. Scald. Erys.
17	Townsend	Nov. 6, 1859	Laborer	M. 29	Tumor of leg	4 Y.	"	55 d.	[See'y] haemor. Lig. of fem. artery.
18	"	Sept. 28, 1840	Farmer	M. 73	Ulcer of stump " leg	16 mo.	"	32 d.	Foot seized by shark. Prin. amp. with razor.
19	"	Oct. 18, 1842	Farmer	M. 45	" " stump	7 Y.	"	51 d.	Conical stump.
20	Hayward	Nov. 11, 1843	Teamster	M. 60	Necrosis of tibia	18 mo.	"	28 d.	Erysipelas.
21	Townsend	Mar. 10, 1845	Farmer	M. 42	Chronic dis. of ankle-joint	20 Y.	"	38 d.	Erysipelas.
22	"	Dec. 23, 1846	Domestic	F. 56	Necrosis of tibia	8 Y.	"	52 d.	Erysipelas.
23	Hayward	Jan. 2, 1847	"	F. 56	Necrosis of tibia	7 mo.	"	91 d.	Erysipelas.
24	J. C. Warren	June 14, 1847	Mariner	M. 19	Tumor of leg	2d Y.	"	230 d.	Spina bifida. Tenotomy of other foot later.
25	Parkman	Aug. 23, 1848	Mechanic	M. 23	Chronic dis. of ankle-joint	16 Y.	Flap	32 d.	Erysipelas.
26	J. M. Warren	April 7, 1849	Minor	F. 17	Necrosis of tarsus	16 Y.	"	27 d.	Erysipelas.
27	"	May 2, 1849	Domestic	F. 28	" "	1 Y.	"	59 d.	Erysipelas.
28	Hayward	Jan. 13, 1851	Seaman	M. 23	Caries of tarsus	16 Y.	Circular	71 d.	Rheumatism.
29	J. M. Warren	April 2, 1851	"	M. 22	" "	16 mo.	"	30 d.	Pulmonary complication. Obstinate vomiting.
30	Parkman	Oct. 10, 1851	Mechanic	M. 41	Chronic dis. of ankle-joint	9 Y.	"	40 d.	Synce's amp. before entrance. Hosp. gang.
31	Townsend	July 3, 1854	"	M. 64	Ulcer of leg	9 mo.	"	37 d.	Sec. hemorrages. Resulting fr. lig. of fem. art. for popliteal aneurism. Erysipelas. D. fr. pyæmia.
32	Bigelow	Aug. 29, 1854	Laborer	M. 22	Chronic dis. of ankle-joint	1 Y.	"	68 d.	Erysipelas.
33	"	Dec. 23, 1854	"	M. 22	Ulcer of leg	7 mo.	"	23 d.	Erysipelas.
34	Townsend	May 15, 1855	Mechanic	M. 56	Gangrene of stump	15 d.	"	98 d.	Necrosis of end of bone.
35	Bigelow	Jan. 26, 1856	"	M. 26	Caries of tarsus	4 mo.	"	144 d.	Resulting fr. lig. of fem. art. for popliteal aneurism. Erysipelas.
36	"	May 16, 1856	Farmer	M. 43	Caries of tarsus	43 Y.	"	42 d.	Erysipelas.
37	J. M. Warren	April 23, 1857	Mechanic	M. 63	Necrosis of tibia	9 Y.	"	68 d.	Erysipelas.
38	"	April 28, 1857	"	M. 25	" tarsus	37 Y.	"	111 d.	Erysipelas.
39	Townsend	June 23, 1857	Laborer	M. 30	Ulcers of leg	7 mo.	"	23 d.	Erysipelas.
40	"	Aug. 29, 1857	"	M. 30	" "	10 Y.	Flap	82 d.	Erysipelas.
41	Bigelow	Oct. 13, 1857	Housekeeper	F. 56	" "	4 mo.	Circular	53 d.	Erysipelas.
42	"	Nov. 28, 1857	Mechanic	M. 22	Caries of tarsus	4 mo.	"	144 d.	Erysipelas.
43	"	Dec. 28, 1857	"	M. 50	Gangrene of foot	9 mo.	"	82 d.	Erysipelas.
44	J. M. Warren	April 22, 1858	Laborer	M. 47	Caries of tarsus	1 Y.	Flap	63 d.	Erysipelas.
45	Townsend	May 10, 1858	Lawyer	M. 30	Ankylosis at knee	28 Y.	Circular	47 d.	Erysipelas.
46	Gay	July 16, 1859	Teacher	M. 28	Caries of tarsus	4 mo.	"	82 d.	Erysipelas.
47	Townsend	Oct. 15, 1859	Machinist	M. 30	Frost-bite of feet	10 d.	Flap	53 d.	Erysipelas.
48	Cabot	Dec. 10, 1859	Blacksmith	M. 38	Caries of tarsus	9 mo.	"	141 d.	Erysipelas.
49	"	Jan. 2, 1860	Trader	M. 38	Frost-bite of feet	9 d.	"	Death	Erysipelas.
50	"	Jan. 17, 1860	Teamster	M. 66	Caries of tarsus	9 mo.	Circular	60 d.	Erysipelas.
51	Clark	Mar. 24, 1860	Farmer	M. 17	Caries of tarsus	6 Y.	Synce's	60 d.	Erysipelas.
52	J. M. Warren	April 13, 1860	Minor	F. 13	Necrosis of tarsus	6 Y.	Flap	78 d.	Erysipelas.
53	Bigelow	July 30, 1860	Tanner	M. 16	" " tibia	10 mo.	Circular	79 d.	Erysipelas.
54	J. M. Warren	Aug. 25, 1860	Farmer	M. 24	" " tibia	3 Y.	"	Death	Erysipelas.
55	Gay	Sept. 14, 1860	Clerk	M. 66	Ulcers of leg	12 Y.	"	75 d.	Erysipelas.
56	Townsend	Oct. 3, 1860	Farmer	F. 34	Pes equino-varus	19 Y.	Cong.	63 d.	Erysipelas.
57	Bigelow	Nov. 13, 1860	Domestic	M. 26	Necrosis of tibia	6 Y.	"	137 d.	Erysipelas.
58	Calot	Dec. 6, 1860	Farmer	F. 15	Caries of tarsus	8 Y.	Flap	34 d.	Erysipelas.
59	J. M. Warren	Oct. 12, 1861	Minor	M. 26	Gangrene of foot	29 Y.	"	79 d.	Erysipelas.
60	Clark	Mar. 3, 1862	Fisherman	F. 64	Ulcers of leg and foot	20 Y.	"	Death	Erysipelas.
61	J. M. Warren	May 27, 1862	Housewife	M. 57	Necrosis of tibia	20 Y.	"	209 d.	Erysipelas.
62	"	Mar. 13, 1863	Butcher	M. 26, 1863	" tarsus	7 mo.	"	Death	Erysipelas.
63	"	Mar. 26, 1863	Farmer	M. 20	"	"	"	14 d.	Erysipelas.

AMPUTATIONS AT THE

Table 17 (continued.)

AMPUTATIONS OF LEG.—PATHOLOGICAL.									
No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Dura-	Amputation.	Result.	Length of Time.
						tion.	Method. Place.		
64	J. M. Warren	July 10, 1863	Clerk	M. 24	Necrosis of tibia	13 y.	Circular	Death	23 d.
65	Clark	Sep. 18, 1863	Farmer	M. 25	Ulcer of stump	1½ y.	Flap	Recovery	21 d.
66	Bigelow	Feb. 5, 1864	Lieutenant	M. 35	Conical stump	7 mo.	Circular	Death	47 d.
67	J. M. Warren	Mar. 28, 1864	Laborer	M. 38	Necrosis of tarsus	5 d.	Flap	Recovery	20 d.
68	Clark	May 21, 1864	Seaman	M. 20	Gangrene of foot	25 d.	Chopart's amp.	Death	55 d.
69	Hodges	June 20, 1864	Clerk	M. 25	Ulcer of stump	1 y.	Flap	Recovery	73 d.
70	J. M. Warren	June 29, 1864	Turner	M. 30	Necrosis of tibia	25 y.	Circular	“	40 d.
71	Hodges	July 7, 1864	Turner	M. 55	“	25 y.	Flap	“	34 d.
72	Clark	July 26, 1864	Soldier	M. 40	Conical stump	7 mo.	Circular	“	57 d.
73	Gay	Aug. 1, 1864	Spinster	F. 24	Atrophy of leg and foot	22 y.	Flap	“	135 d.
74	J. M. Warren	Sept. 30, 1864	Clerk	M. 20	Tumor of leg	1 y.	Circular	Death	15 d.
75	Hodges	Oct. 11, 1864	Comedian	M. 34	Caries of tarsus	12 y.	Flap	Recovery	39 d.
76	Bigelow	Oct. 20, 1864	Seaman	M. 50	Necrosis of tibia	30 d.	Chopart's amp.	71 d.	Following fract. of thigh and contusion of foot.
77	Clark	June 2, 1865	Minor	M. 12	Gangrene of leg and foot	3 y.	Flap	“	Same patient as No. 135. D. fr. pyam. as sl. at aut.
78	Gay	July 21, 1865	Clerk	M. 29	Necrosis of tarsus	3 y.	Circular	Death	9 d.
79	Bigelow	Nov. 1, 1865	Spinster	F. 45	Caries of tarsus	3 y.	Flap	Recovery	60 d.
80	Hodges	Nov. 20, 1865	Minor	M. 7	Dehortity of leg	1 y.	Circular	“	27 d.
81	J. M. Warren	Mar. 22, 1866	Tailor	M. 48	Ulcer of stump	28 y.	Flap	“	32 d.
82	Clark	May 2, 1866	Seaman	M. 56	“	14 y.	Flap	“	Chopart's amp. 1½ years ago for gangrene. Erysip.
83	“	May 3, 1866	Widow	F. 59	Necrosis of tibia	7 y.	Flap	Primary amp. at ¾ for gangrene 8 years ago.	51 d.
84	“	May 16, 1866	Lawyer	M. 27	Ulcer of stump	9 mo.	Circular	“	Primary amp. at ¾ for bullet wound.
85	J. M. Warren	May 22, 1866	Lt. Colonel	M. 26	“	4 y.	Flap	“	“
86	Hodges	Sept. 18, 1866	Farmer	M. 23	“	2 y.	Teale's	“	“
87	“	Dec. 2, 1866	Laborer	M. 60	Necrosis of tibia	40 y.	Flap	“	“
88	Bigelow	Dec. 15, 1866	Bootsman	M. 19	Ulcer of leg	24 y.	Flap	Death	16 d.
89	Hodges	Dec. 15, 1866	Operative	F. 27	Caries of tarsus	1 y.	Circular	Recovery	16 d.
90	Cahoon	Dec. 20, 1866	Barber	M. 28	Ulcer of stump	6 mo.	Flap	Recovery	16 d.
91	J. M. Warren	Jan. 16, 1867	Clerk	M. 22	“	26 y.	Circular	“	Sloughing of flaps. Resulting fr. fracture.
92	“	Oct. 16, 1867	Widow	F. 50	“	18 y.	Flap	“	“
93	Bigelow	May 15, 1867	Minor	M. 16	“	5 y.	Flap	“	“
94	“	Sept. 9, 1867	Painter	M. 27	Tumor of foot	5 y.	Flap	“	“
95	Gay	Sept. 16, 1867	Mechanic	M. 32	Ulcer of stump	12 y.	Flap	“	“
96	Hodges	Oct. 3, 1867	Operative	F. 20	Ankylosis at knee	2 y.	Flap	“	“
97	“	Oct. 10, 1867	Minor	F. 20	Painful stump	2 y.	Flap	“	Prim. amp. at ¾ for gunshot wound.
98	“	Oct. 16, 1867	Mechanic	M. 32	Caries of tarsus	2 y.	Flap	“	“
99	“	Nov. 21, 1867	Widow	F. 58	Ulcer of leg	5 y.	Flap	“	Excision 2 mos. earlier. Resection of end of bones 1 y. lat.
100	Cabot	Nov. 23, 1867	Carrier	M. 28	Necrosis of tarsus	2 mo.	Flap	“	Sloughing of flaps. Resec. of end of bones 1 y. lat.
101	Bigelow	Jan. 18, 1868	Housewife	F. 23	Gangrene of foot	2 mo.	Circular	“	Following amp. of toe. Resec. of end of bones.
102	“	Feb. 12, 1868	Pedlar	M. 23	Painful stump	4 y.	Flap	“	“
103	Clark	Mar. 31, 1868	Shoemaker	M. 27	Pes equinus	17 y.	Flap	“	“
104	“	May 30, 1868	Tinsmith	M. 25	Ulcer of stump	2 y.	Flap	“	“
105	Bigelow	June 26, 1868	Domestic	F. 18	Painful-stump	6 mo.	“	“	“
106	Coolidge	July 13, 1868	Cooper	M. 36	Caries of tarsus	2 mo.	Circular	“	“
107	“	July 18, 1868	Carrier	M. 26	Ulcer of stump	4 y.	Flap	“	“
108	Gay	Aug. 27, 1868	Laborer	M. 24	“	2 mo.	Circular	“	“
109	Hodges	Sept. 22, 1868	Farmer	M. 58	Necrosis of tibia	1 y.	Flap	“	“
110	“	Oct. 2, 1868	Minor	M. 19	“	“	“	“	“
111	Gay	Dec. 1, 1868	Widow	F. 59	Ulcer of stump	4 y.	Flap	“	“
112	Cabot	Dec. 8, 1868	Minor	M. 15	Necrosis of tibia	4 y.	Flap	“	“

Table 17 (concluded.)

AMPUTATIONS OF LEG.—PATHOLOGICAL.									
No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation. Method, Place.	Result.	Length of Time.
113	Cabot	Dec. 17, 1868	Laborer	M. 23	Conical stump	4 y.	Flap	Recovery	35 d.
114	"	April 7, 1869	Seaman	M. 19	Painful stump	1 y.	"	"	69 d.
115	Gay	Sept. 14, 1869	Farmer	M. 69	Necrosis of tarsus	16 y.	Circular	"	52 d.
116	Bigelow	Jan. 7, 1870	Minor	M. 11	"	1 y.	Flap	"	88 d.
117	Hodges	May 6, 1870	Housewife	F. 37	Gangrene of leg and foot]	3 mo.	"	"	46 d.
118	Bigelow	June 28, 1870	Clerk	M. 22	Necrosis of tarsus	17 y.	Circular	"	47 d.
119	"	Nov. 29, 1870	Laborer	M. 44	"	9 mo.	Flap	"	66 d.
120	Clark	Mar. 21, 1871	Minor	M. 17	"	3 mo.	Circular	"	
Recovered,	104				The causes of amputation were:	32 cases.		Tumors in	5 cases.
Died,	15				Deaths from Exhaustion, 9			Frost-bites	4 "
					" " Pyæmia, 6			Ulcers	20 "
								Caries of tarsus,	16 "
								Gangrene,	16 "
								Ankylos, at knee 2 "	3 "
								Club-feet,	2 "
								Atrophy,	1 "

The number of deaths from each cause is as follows:

Exhaustion,	98=64.44 per cent. of fatal cases
Pyæmia,	42=23.33 "
Collapse,	21=11.61 "
Shock,	8=4.44 "
Cerebral lesion,	2 "
" compression,	2 "
Peritonitis,	2 "
Tetanus,	2 "
Chloroform,	1 "
Malignant growth,	1 "
Unknown,	1 "

Total, 180 deaths in 692 cases=26.01 per cent. of mortality, exclusive of 7 cases in which the result is unknown or unrecorded.

This rate of mortality in Table 17 may be contrasted with that of Sir James Y. Simpson, calculated for British Hospitals with 100—200 beds, 23 per cent. (*Lancet*, Sept. 25, 1869, p. 431), with that of Mr. G. W. Callender for Country Hospitals having 150—270 beds, 18.86 per cent. (*Lancet*, Sept. 18, 1869, p. 420).

It may also be noted that the death rate from pyæmia compares very favorably with that reduced by Mr. Bryant from 300 cases of amputation in Guy's Hospital, in which it was 42 per cent. of all fatal cases. Sir J. Y. Simpson in his articles on "Hospitalism" holds that "50 per cent. of the deaths after amputation in our large hospitals are the result of pyæmia." (*Lancet*, Oct. 16, 1869, p. 538).

The Massachusetts General Hospital contains 175 beds, including both medical and surgical, arranged in wards varying in capacity from 7 to 21 beds, and an out-building used for a foul-ward.

Tabular View of Results at the N. York, Pennsylvania and Boston City, and Massachusetts General Hospitals, and in the British Hospitals as reported by Sir James Y. Simpson.

TRAUMATIC PRIMARY.

		NEW YORK HOSP.	PENNSYLV. HOSP.	BOSTON CITY HOSP.	MASS. GEN. HOSP.
Should. joint	3	Recovered.			
Arm	14	4	Died.	Total.	Ratio of Mortality.
Forearm	8	14	0.	53	57.14
Hip-joint	2	2	20.	5	5
Thigh	4	2	100.	83	58
Knee-joint	2	12	75.	14	6.2
Leg	10	16	41.17	10	24
		Recovered.			
Should. joint	3	2	Died.	Total.	Ratio of Mortality.
Arm	14	1	4	9	56.25
Forearm	8	3	3	11	33.33
Hip-joint	2	0	0	2	0.
Thigh	4	14	42.85	15	40.
Knee-joint	2	11	18.18	12	27
Leg	9	2	18.82	15	55.55
		Recovered.			
Should. joint	3	1	Died.	Total.	Ratio of Mortality.
Arm	14	6	3	9	33.33
Forearm	8	7	4	11	36.36
Hip-joint	2	0	0	2	0.
Thigh	4	3	4	4	75.00
Knee-joint	2	2	7	7	28.57
Leg	9	5	34	18	38.88

TRAUMATIC SECONDARY (After 24 hours).

		NEW YORK HOSP.	PENNSYLV. HOSP.	BOSTON CITY HOSP.	MASS. GEN. HOSP.
Should. joint	2	Recovered.			
Arm	3	2	Died.	Total.	Ratio of Mortality.
Forearm	2	1	4	9	50.
Hip-joint	8	6	14	15	42.85
Thigh	9	2	11	12	18.18
Knee-joint	9	2	11	12	18.18
Leg	9	2	11	12	18.18
		Recovered.			
Should. joint	2	1	Died.	Total.	Ratio of Mortality.
Arm	3	5	3	8	62.50
Forearm	2	0	0	2	0.
Hip-joint	8	1	3	4	75.00
Thigh	9	2	7	7	28.57
Knee-joint	9	5	34	18	34.61
Leg	9	5	34	18	34.61
		Recovered.			
Should. joint	2	1	Died.	Total.	Ratio of Mortality.
Arm	3	5	3	8	66.67
Forearm	2	0	0	2	0.
Hip-joint	8	1	3	4	75.00
Thigh	9	2	7	7	28.57
Knee-joint	9	5	34	18	34.61
Leg	9	5	34	18	34.61

PATHOLOGICAL.

NEW YORK HOSP. PENNSYLV. HOSP. BOSTON CITY HOSP. MASS. GEN. HOSP. SIMPSON.

	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Should. joint	1	1	2	50.	3	1	4	0.	5	1	6	25.00	5	0	5	0.
Arm	3	3	6	0.	2	3	5	0.	2	4	6	33.33	4	4	8	20.
Forearm	5	2	7	28.57	6	6	12	0.	4	2	6	2	2	4	27	14.81
Hip-joint	15	6	21	28.57	28	9	37	24.32	12	4	16	25.00	128	34	162	20.96
Thigh													7	4	11	36.36
Knee-joint													104	15	119	12.60
Leg	12	4	16	25.	21	7	28	25.	6	1	7	14.28	119	194	283	31.45

SUMMARY OF THREE PRECEDING TABLES.

NEW YORK HOSP. PENNSYLV. HOSP. BOSTON CITY HOSP. MASS. GEN. HOSP. SIMPSON.

	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Should. joint	6	7	13	53.84	10	2	12	16.66	17	4	21	37.03	15	8	23	27.27
Arm	20	1	21	4.76	62	9	71	12.67	10	7	27	37.03	62	4	32	12.50
Forearm	15	5	20	25.	91	9	100	9.	15	2	17	11.76	55	13	68	14.81
Hip-joint													2	1	3	33.33
Thigh	27	24	51	47.05	51	25	76	32.89	19	22	41	53.65	168	68	236	28.81
Knee-joint													9	7	16	43.75
Leg	31	13	44	29.54	84	54	138	38.41	22	10	32	31.25	201	66	267	24.71

STATISTICS FOR THE FOUR AMERICAN HOSPITALS.

TRAUM. PRIMARY. TRAUM. SECONDARY. PATHOLOGICAL.

	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Should. joint	21	20	41	48.78	3	3	6	50.	11	4	15	26.66	0	0	0	0.
Arm	106	16	122	13.11	17	12	29	41.37	38	6	44	13.63	110	297	307	37.03
Forearm	117	14	131	10.68	21	7	28	25.	38	8	46	17.39	204	40	244	16.39
Hip-joint	5	5	100.						2	0	2	0.00				
Thigh	58	62	120	51.66	24	24	48	50.00	183	53	236	22.03				
Knee-joint	2	3	5	60.00					7	4	11	36.36				
Leg	135	79	214	36.91	60	37	97	38.14	143	27	170	15.88				

MASSACHUSETTS GENERAL HOSPITAL.

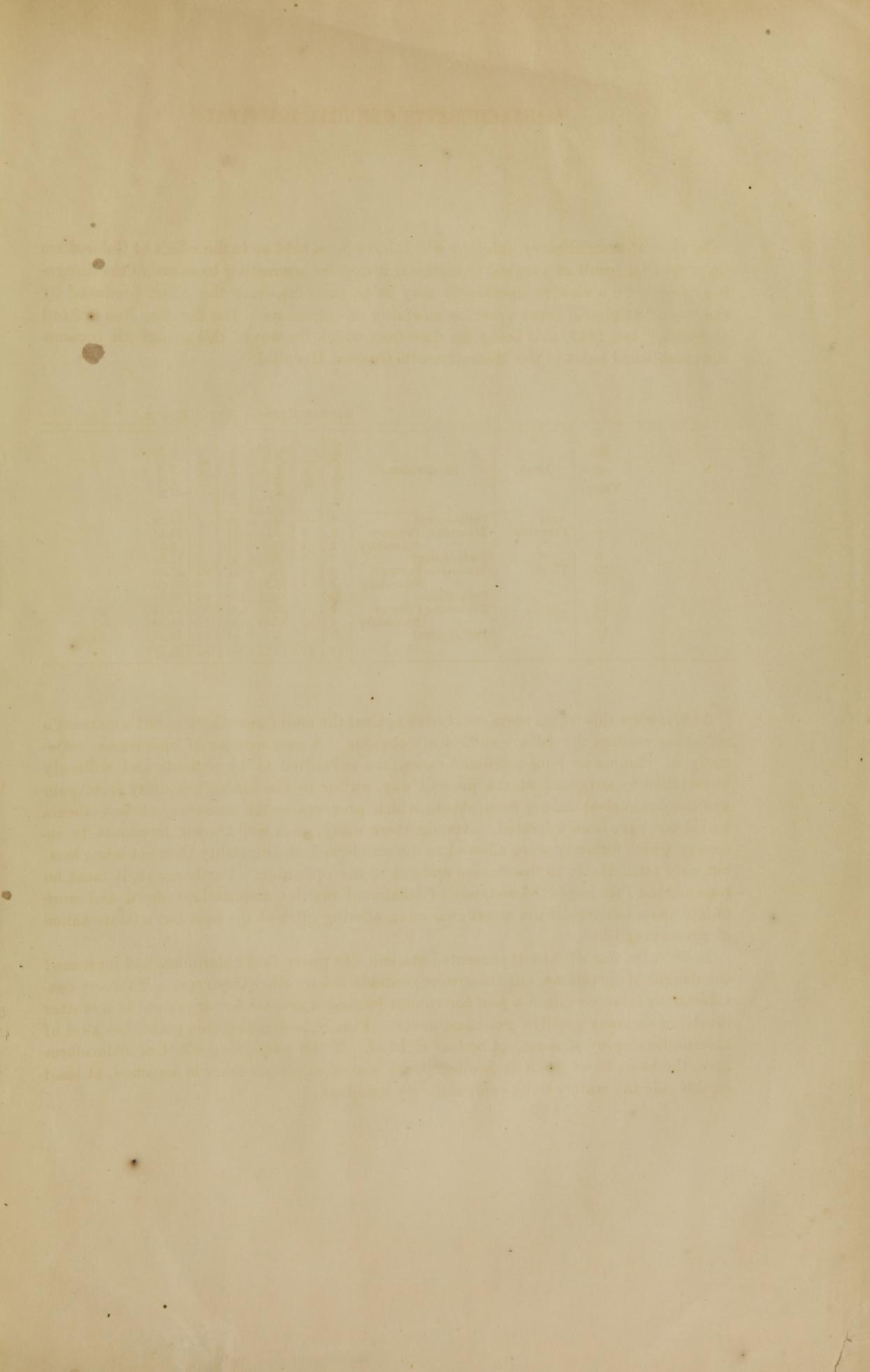
In view of contradictory opinions which have been held as to the effect of Chloroform upon the final result of surgical operations, it may be interesting to examine the foregoing tables with a view to deciding it may be in some measure the effect produced by the use of Sulphuric Ether upon the mortality of operations. The dividing line is fixed at January 1st, 1847, that being the date from which the use of this anæsthetic became the established habit in the Massachusetts General Hospital.

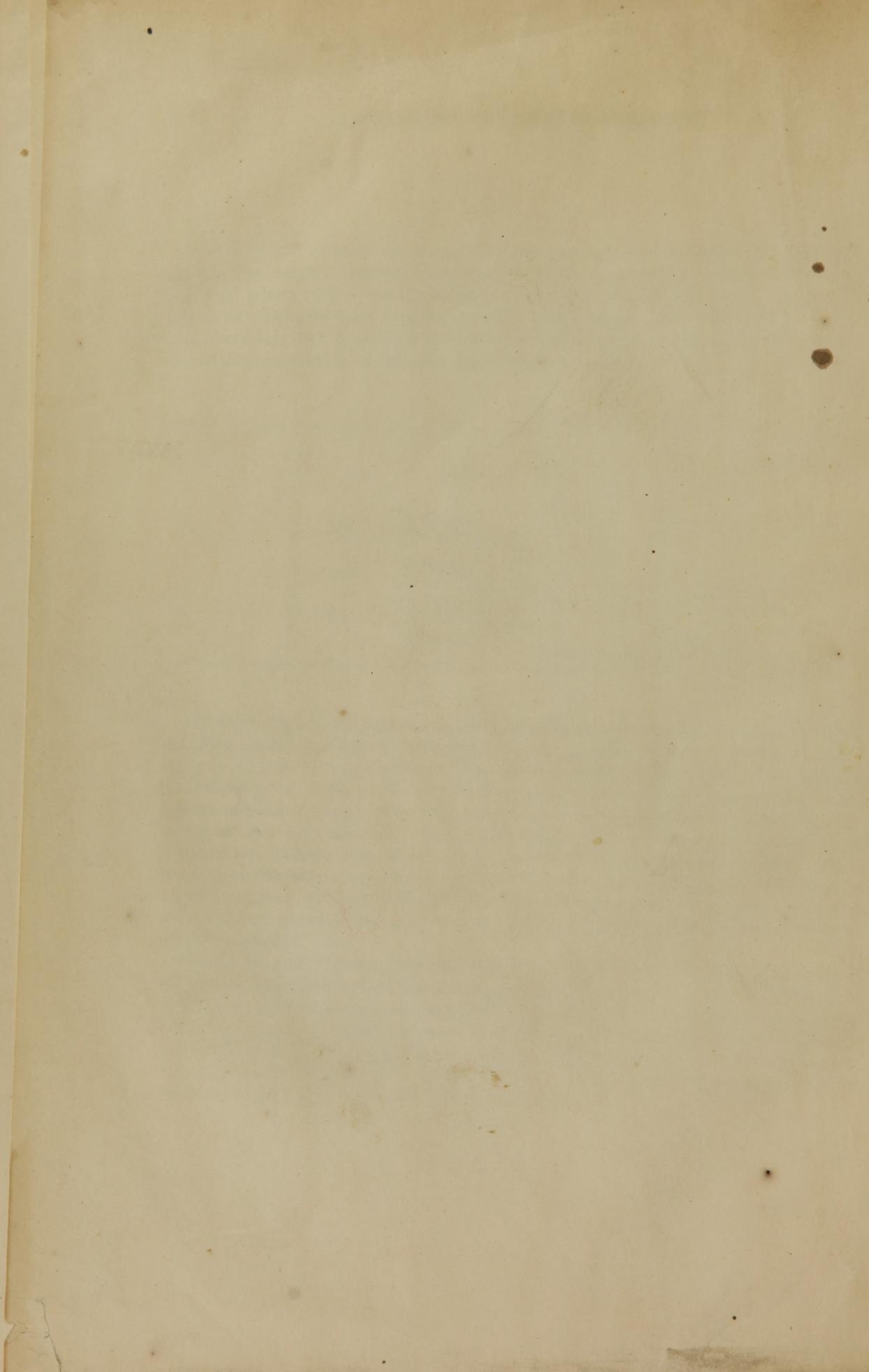
BEFORE ETHER. AFTER ETHER.

No. of Table.	Limb.	Subdivision.	Recovered.	Died.	Ratio of Mortality.	Recovered.	Died.	Ratio of Mortality.
5	Arm	Pathological	4	0	0.	24	4	14.28
6	Forearm	Traumatic Primary	2	0	0.	22	7	24.13
7	"	" Secondary	1	1	50.	11	1	8.33
8		Pathological	4	0	0.	19	4	17.39
10	Thigh	Traumatic Primary	3	3	50.	31	22	41.50
11	"	" Secondary	2	1	33.33	4	8	66.66
12	"	Pathological	26	7	21.21	102	26	20.31
15	Leg	Traumatic Primary	4	1	20.00	59	32	35.16
16	"	" Secondary	5	3	37.50	29	15	34.09
17	"	Pathological	20	1	5.	84	14	14.28
			71	17	19.31	385	133	25.67

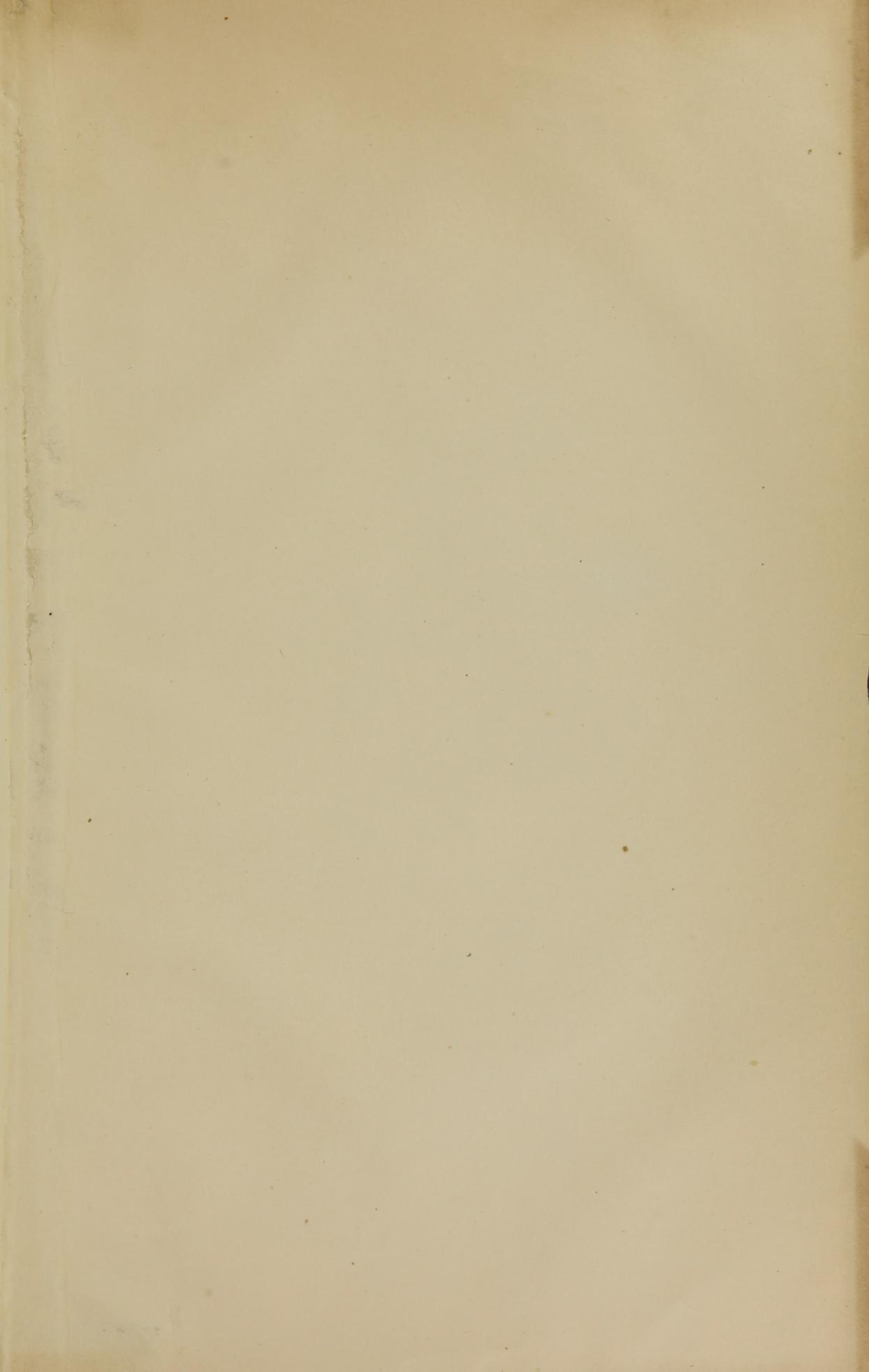
At first view this would seem conclusive against the use of anæsthetics, but a moment's reflection renders the fallacy sufficiently obvious. A vast number of operations, especially in chronic or long-continued cases, are submitted to by patients and willingly undertaken by surgeons at the present day, owing to the entire immunity from pain and the diminished danger from shock, which previous to the discovery of anæsthesia would not have been tolerated. Among these many, as is well known, terminate in recovery which formerly were allowed to die unrelieved, the mortality then not being less, but only attributable to the disease and not to the operation. Furthermore, it must be remembered that improved methods of treatment restrict amputations more and more of late years to cases of the worst character, offering often at the best but a faint chance of preserving life.

In 1856 Dr. James Arnott presented statistics to prove that chloroform had increased the danger of operations, but these were contradicted by other observers. So many considerations interpose, that a *post hoc* cannot become a *propter hoc* argument in a matter involving so many qualifying circumstances. Finally, in deciding this point, the kind of anæsthetic employed must not be lost sight of. If the paralyzing effect of chloroform upon the heart be as great as is alleged, the use of sulphuric ether is assumed, at least on this side the water, to be comparatively harmless.









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